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WAR DEPARTMENT

Annual Reports, 1910

(IN FOUR VOLUMES)

Volume I

Reports of

THE SECRETARY OF WAR
THE CHIEF OF STAFF
THE ADJUTANT-GENERAL
THE INSPECTOR-GENERAL
THE JUDGE-ADVOCATE-GENERAL
THE QUARTERMASTER-GENERAL
THE COMMISSARY-GENERAL
THE SURGEON-GENERAL
THE PAYMASTER-GENERAL
THE CHIEF OF ORDNANCE
THE CHIEF SIGNAL OFFICER
THE CHIEF OF COAST ARTILLERY

WASHINGTON
GOVERNMENT PRINTING OFFICE
1910

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ARRANGEMENT OF THE ANNUAL REPORTS OF THE WAR DEPARTMENT FOR THE YEAR ENDED JUNE 30, 1910.

Volume I.....Secretary of War.
Chief of Staff.
The Adjutant-General.
Inspector-General.
Judge-Advocate-General.
Quartermaster-General.
Commissary-General
Surgeon-General.
Paymaster-General.
Chief of Ordnance.
Chief Signal Officer.
Chief of Coast Artillery.

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Volume II.....Chief of Engineers (without Appendices).

Volume III.....Division and Department Commanders:
Department of the East.
Department of the Gulf.
Department of the Lakes.
Department of the Missouri.
Department of Dakota.
Department of Texas.
Department of the Colorado.
Department of California.
Department of the Columbia.
Philippines Division.
Department of Luzon.
Department of the Visayas.
Department of Mindanao.
Military Academy—
Superintendent.
Military Parks—
Chickamauga and Chattanooga.
Gettysburg.
Shiloh.
Vicksburg.

Volume IV.....Chief of Bureau of Insular Affairs.
The Philippine Commission.
Acts of the Philippine Legislature.
Governor of Porto Rico.

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REPORT OF THE SECRETARY OF WAR.

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REPORT OF THE SECRETARY OF WAR.

WAR DEPARTMENT,
Washington, D. C., December 5, 1910.

To the PRESIDENT:

I have the honor to submit the following report of operations of this department for the past year:

THE ARMY.

Actual strength and distribution.

At the date of the last reports received from the military departments (October 15, 1910) the actual strength of the Regular Army was 4,310 officers and 67,459 enlisted men, a total of 71,769. As compared with the strength reported last year, this shows an increase of 101 officers and a decrease of 4,381 enlisted men, making a net decrease of the Regular Army during the year of 4,280. These figures do not include the 3,486 men of the Hospital Corps, excluded by the act of March 1, 1887, from classification as part of the enlisted force of the army. There were also in the service 166 officers and 5,100 enlisted men of the Philippine Scouts. This is an increase of 9 officers and a decrease of 472 enlisted men during the year, making a net decrease of 463.

Including the Hospital Corps and the Philippine Scouts with the Regular Army, there was a total net decrease from last year of 4,742.

Since the date of my last annual report four more companies of Philippine Scouts have been given a battalion organization, making a total of 12 battalions organized under the provisions of the act of Congress of February 2, 1901. This was simply a grouping of a portion of the existing strength into a battalion organization and not an addition to the force of Philippine Scouts, which as indicated above shows a net decrease of about 9 per cent.

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The geographical distribution of the army on October 15, 1910, including the Philippine Scouts but not including the Hospital Corps, is shown in the following table:

Geographical distribution.	Officers.	Enlisted men.	Total.
In the United States	3,366	53,595	56,961
In Alaska	50	1,078	1,128
In the Philippines:			
Regular Army	719	10,243	10,962
Philippine Scouts	166	5,100	5,266
In Porto Rico	29	575	604
In Hawaii	72	1,299	1,371
Troops en route and officers at other foreign stations	74	669	743
Total	4,476	72,559	77,035

The distribution among the different branches of the service was as follows:

Branches of service.	Officers.	Enlisted men.	Total.
General officers	21	.....	21
Staff corps and departments	[a] 924	[b] 2,316	3,240
Engineers	186	1,817	2,003
Cavalry	760	11,003	11,763
Field artillery	232	4,807	5,039
Coast Artillery Corps	667	17,930	18,597
Infantry	1,520	23,666	25,186
Miscellaneous	.....	5,920	5,920
Total Regular Army	[a] 4,310	[b] 67,459	71,769
Philippine Scouts	166	5,100	5,266
Aggregate	[a] 4,476	[b] 72,559	77,035

[a] Including 197 first lieutenants of the Medical Reserve Corps on active duty.
[b] Not including 3,486 enlisted men of the Hospital Corps.

Maximum authorized strength.

The maximum permanently authorized strength of the Regular Army on October 15, 1910, was 4,453 officers and 76,911 enlisted men. As compared with the corresponding date last year, this shows an increase of 22 officers and a decrease of 1,877 enlisted men, making a net decrease during the year of 1,855. The present authorized maximum strength of the Philippine Scouts is 180 officers and 5,732 enlisted men, an increase during the year of 2 officers and 1 enlisted man.

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These figures do not include the Hospital Corps, which has an authorized strength of 3,500 men, but under the law is not to be counted as part of the enlisted strength of the army.

The permanently authorized strength of the military establishment on October 15, 1910 (exclusive of the Hospital Corps), is shown by branches of service in the following table:

Branches of service.	Officers.	Enlisted men.	Total.
General officers	21	.....	21
Adjutant-General's Department	24	.....	24
Inspector-General's Department	17	.....	17
Judge-Advocate-General's Department	12	.....	12
Quartermaster's Department	96	200	296
Subsistence Department	44	203	247
Medical Department	[a] 621	([b])	621
Pay Department	53	.....	53
Corps of Engineers	189	2,002	2,191
Ordnance Department	85	730	815
Signal Corps	46	1,212	1,258
Bureau of Insular Affairs	3	.....	3
Cavalry	765	12,775	13,540
Field artillery	236	5,220	5,456
Coast Artillery Corps	672	19,321	19,993
Infantry	1,530	25,231	26,761
Porto Rico Regiment of Infantry	32	576	608
United States Military Academy detachments	7	500	507
Recruiting parties, recruit depots, and unassigned recruits	.....	8,000	8,000
United States Military Prison guards	.....	320	320
Service-school detachments	.....	546	546
Indian scouts	.....	75	75
Total Regular Army	4,453	76,911	81,364
Philippine Scouts	180	5,732	5,912
Aggregate	4,633	82,643	87,276

[a] Including officers of the Medical Reserve Corps on active duty.
[b] Not including the Hospital Corps

While there was a decrease in the permanently authorized enlisted strength of the army, there was a still larger decrease in the actual enlisted strength, which was 10,084 short of the authorized strength on October 15, 1910, as against a shortage of 7,107 on October 15, 1909. This is accounted for by the reduction of the total enlisted strength of the Army to not exceeding 80,000 (including the Hospital Corps and the Philippine Scouts), as ordered by the President for the fiscal year 1911 in order to keep the expenditure on account of enlisted men within the appropriations available for that purpose.

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To meet the requirements of this order, for several months enlistments for the line of the army were restricted to such applicants as had had previous service and been honorably discharged therefrom.

Vacancies.

On October 15, 1910, vacancies existed in the permanently authorized strength of the Regular Army as follows: Officers, 143; enlisted men, 9,452. In the Philippine Scouts: Officers, 14; enlisted men, 632.

OFFICERS.

There were 4,273 commissioned officers on the active list of the Regular Army on June 30, 1910, 1,167 (including 65 chaplains) being general officers or officers of the staff corps and departments, and 3,106 belonging to the line.

One thousand and forty-six general and staff officers and 2,306 line officers were present for duty, and 121 general and staff officers (10.37 per cent) and 800 line officers (25.76 per cent) were absent from their commands—relatively fewer than at the close of the preceding fiscal year, when 12.51 per cent of the general and staff officers and 27.38 per cent of the line officers were absent.

Detached officers.

Of these 921 officers who were absent from their commands on June 30, 1910, 728 were on detached service. Of the officers on detached duty 662, or all but 66, were line officers, and 565 of the 662—more than 85 per cent—were captains or lieutenants. The purposes for which the 728 officers were detached, the number engaged in each particular duty, and the branches of service from which detached are shown in the following table:

	General officers and officers of staff corps and departments.	Cavalry.	Field artillery.	Coast Artillery Corps.	Infantry.	Total.
The General Staff	6	10	4	6	18	44
With the General Staff			1		2	3
Army War College	3	8	2	2	20	35
United States Military Academy	12	17	10	14	24	77
Army service schools, Fort Leavenworth	9	20	9		55	93
Artillery School, Fort Monroe				51		51
Mounted Service School, Fort Riley		17	8			25
Engineer School, Washington Barracks	6					6
School of Musketry, Presidio of Monterey					3	3

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	General officers and officers of staff corps and departments.	Cavalry.	Field artillery.	Coast Artillery Corps.	Infantry.	Total.
At schools in Europe	1	1				2
Instructors at civil educational institutions		20		2	42	64
Recruiting service		28	8	24	59	119
Aides-de-camp		9	3	2	12	26
With Philippine government	2	5		1	8	16
With Cuban government		1	1	1		3
With Isthmian Canal Commission	17	4		1	3	25
Military attachés		5	2	3	4	14
With Porto Rico regiment		1			2	3
With Philippine Scouts		4		1	7	12
Acting judge-advocates		2			6	8
With Quartermaster's Department		9	1	3	12	25
Assistants to Chief of Coast Artillery				7		7
Acting inspectors-general		1		2		3
In bureaus of War Department	1	1	1	1	3	7
At department headquarters		4	2	4	9	19
At the military prisons		2		2	8	12
With militia					1	1
Member of Ordnance Board				1		1
Alaskan Road Commission					2	2
Office engineer commissioner, District of Columbia	4					4
Superintendent State, War, and Navy building	1					1
Office Public Buildings and Grounds	2	1				3
In charge of Indian prisoners		1				1
With Signal Corps					1	1
Special duty abroad		2			2	4
Members of boards		4	1			5
Superintendent, Yosemite National Park		1				1
On special duty	1					1
Student, Cornell University	1					1
Total	66	178	53	128	303	728

Second lieutenants.

Since June 30, 1909, 311 second lieutenants have been added to the army, 183 having been appointed from the Military Academy, of whom 101 were graduated in June, 1909, but not commissioned until after the close of that fiscal year; 26 from enlisted men of the army; and 102 from civil life, 9 of whom were graduates from the United States Naval Academy. On July 1, 1910, 25 vacancies existed in the line of the army—1 in the Coast Artillery Corps, and 24 in the infantry—and are available for the appointment of civilians. An examination of civilian candidates was

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held at Fort Leavenworth, Kans., beginning November 1, 1910, to determine their fitness for appointment as second lieutenants of infantry, but the report as to the result of the examination has not yet been received.

Examination of officers for promotion.

During the past fiscal year 246 officers were examined for promotion, and 5 were reexamined. On the first examination 228 were found qualified for promotion; 8 were found professionally disqualified and under the law will be suspended from promotion for one year; 2 were honorably discharged with one year's pay under the provisions of the act of April 23, 1908; and 8 were found physically disqualified, of whom 6 have been retired and 2 will be retired upon the occurrence of vacancies.

Of the 5 reexamined after suspension, 2 have been promoted, 1 retired, and 2 honorably discharged.

Retired officers.

Eighty officers were retired during the fiscal year 1910, 8 less than were retired during the preceding year. The total number on the retired list on June 30, 1910, was 1,015, as compared with 1,000 at the corresponding date the previous year. Of the number retired during the fiscal year 1910, 49 were retired for disability; 15 on their own application; 14 by operation of law, having reached the age limit; and 2 after second failure to pass the professional examination.

During the year 2 colonels and 1 major were advanced one grade on the retired list because of civil-war service, under the provisions of the act of April 23, 1904. During the preceding year 6 colonels and 2 first lieutenants were so advanced under that law.

Under the act of Congress authorizing the Secretary of War to detail retired officers, with their consent, to certain specified duties, 89 retired officers were under assignment to duty at the close of the fiscal year—4 more than at the close of the preceding year. Of this number 25 were instructors at educational institutions; 36 were detailed with the state militia; 18 were on recruiting service; 3 were on duty as officers of the Soldiers' Home, Washington, D. C.; 1 was at the Army Service Schools, Fort Leavenworth, Kans.; 1 in the office of the Chief of Staff; 1 at the Army War College; 2 on duty as military attachés, and 2 on special duty.

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ENLISTED MEN.

Enlistments.

The total number of enlistments in the army during the fiscal year ended June 30, 1910 (exclusive of the Hospital Corps and the Philippine Scouts), was 17,973, of which 7,268 were reenlistments and 10,705 were original enlistments. The percentage of native born (white and colored) among the original enlistments was 88. The corresponding figures for the preceding fiscal year are as follows: Total enlistments, 31,057, of which 9,042 were reenlistments and 22,015 were original enlistments, the percentage of native born among the original enlistments being about 87.

Five hundred and thirty-eight Filipinos were enlisted for the Philippine Scouts during the year, all of whom were natives of the Philippine Islands, as required by the law authorizing their enlistment. Of this number, 207 were reenlistments and 331 original enlistments.

The enlistments for the Hospital Corps during the year numbered 607, of which 432 were reenlistments and 175 original enlistments.

Including the Hospital Corps and the Philippine Scouts with the Regular Army, the aggregate of all enlistments and reenlistments during the year was 19,118.

In making these enlistments the recruiting officers examined 100,996 men, of whom 81,878, or about 81 per cent of the whole number, were rejected as lacking in either mental, moral, or physical qualifications. Of this number, however, 12,429, or about 12 per cent, were rejected because of lack of prior military service, which from March 1, 1910, until after the end of the fiscal year was prescribed as a necessary qualification for enlistment, in order to bring about the reduction ordered by the President in the enlisted strength of the army to not exceeding 80,000, as referred to elsewhere in this report.

Recruiting system.

The results obtained under the general recruiting system that has been developed during the past five years indicate that the system is based on sound principles and is being administered effectively.

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The essential features differentiating the present system from the methods formerly in force are that applicants are not enlisted at recruiting stations, but are merely accepted there and then sent to recruit depots and depot posts for physical examination and enlistment if found qualified. Under the new system, each recruit upon arrival at the depot is carefully examined by army medical officers of experience; formerly, where recruits were enlisted at stations, the recruiting officer had to rely on the advice of civilian physicians unfamiliar with the requirements of the military service. After enlistment the recruit is kept at the depot under observation for a period of not less than twenty-five days, and is not assigned to an organization until he has acquired a good knowledge of his duty as a soldier by means of a course of practical instruction which is given him accompanied by daily lectures and a certain amount of school work. Recruits who for any cause are found to be not qualified for the service are discharged, one of the important functions of the recruit depot being to eliminate undesirable recruits before assignment to an organization.

Cost of recruiting.

An inquiry into the subject of the comparative cost of recruiting the army under the two systems shows that the approximate cost per capita for putting recruits into the ranks of the army averaged $46.74 per annum for the fiscal years 1903 and 1904, the last two years of the old system, and $50.42, an increase of $3.68, per annum during the fiscal years 1908 and 1909 when the present system of recruiting was in full operation.

These figures include all items of expense incurred by the general recruiting service on account of the recruit prior to his enlistment, and all items of expense incurred after his enlistment and up to the time of his joining a company or other organization of the army, except such items as would necessarily be incurred after the enlistment of any man who should present himself at a military post, and, without any previous cost to the Government, should be enlisted there and assigned to an organization serving at that post. The cost of maintaining the permanent garrisons and the buildings and grounds at the military posts to which, as general recruit depots, recruits are sent from the recruiting stations throughout the country for examination, enlistment, preliminary instructions, and for distribution to organizations of the army, is not included in the figures showing the cost of the general recruiting service.

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For a number of years past extraordinary efforts have been made by the department to reduce desertion. The distinguishing features of the course adopted consist in prompt and vigorous pursuit of a deserter by means practically certain to result in his apprehension and subsequent punishment as a military convict under the hard and rigorous conditions of prison discipline.

Desertions.

During the fiscal year 1910 this policy was continued with unabated vigor. It is gratifying to be able to report that the number of desertions was 30.6 per cent less than for the preceding year, and that the 3,464 desertions give a percentage of 3.66 for 1910 against 4.97 for 1909. The relative number of desertions, as shown by the report of The Adjutant-General of the Army, was less than in any fiscal year since 1899, and included a decrease in the percentages of desertion in every branch of the service compared with 1909, and a decrease in every branch of the service for each year since 1904 except in the Coast Artillery for 1908. The decrease from 1909 was most marked in the Engineers, Field Artillery, and Cavalry.

The results of the new policy, as shown in the report of The Adjutant-General, would seem to justify its adoption, and I invite attention to the discussion of the subject contained in his annual report for this year.

The attitude of the War Department toward this matter is that its duty is to safeguard and protect the interests of the army—to correct the evil rather than to reform the evildoer. Its purpose is to reduce desertion to the minimum, and in aid of that purpose it seeks to impress the fact that desertion from the army, which in time of war may be punishable by death, is in time of peace a criminal offense; that the pursuit of the deserter will be unremitting and his punishment severe.

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LOSSES.

The following statement shows the losses from all causes in the army, including the Hospital Corps and the Philippine Scouts, during the fiscal year ended June 30, 1910:

REGULAR ARMY.

Officers:		
Killed in action or died of wounds, disease, etc	17	
Resigned or discharged	46	
Dismissed	5	
Retired	80	
		148
Enlisted men:		
Killed in action or died of wounds, disease, etc	320	
Discharged upon expiration of term of service	11,911	
Discharged—		
For disability	1,053	
By general court-martial	2,730	
By order	3,905	
Deserted	3,464	
Retired	305	
		23,688
Total		23,836

Wounded, 3 officers and 16 enlisted men.

PHILIPPINE SCOUTS.

Officers:		
Killed in action or died of wounds, disease, etc	1	
Resigned or discharged	10	
Dismissed	1	
		12
Enlisted men:		
Killed in action or died of wounds, disease, etc	28	
Discharged upon expiration of term of service	500	
Discharged—		
For disability	38	
By general court-martial	36	
By order	80	
Deserted	42	
		724
Total		736

Wounded, 2 enlisted men.

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HEALTH AND MORTALITY.

As shown by the following statistics, which are for the calendar year and not the fiscal year, the year 1909 maintained the improvement in the health of the army which has been in progress for a number of years past.

Noneffective rate.

The rates for total admission to sick report, for deaths, and for discharges were all less than last year and much less than the average for the last decade. The constantly noneffective rate, which is the true measure of the loss in efficiency of the army from sickness and injury, was for the calendar year 1909, 41.48 per thousand, as compared with 42.68 for 1908 and the average noneffective rate for the past decade of 52.02.

Diseases most prevalent.

The diseases causing the greatest noneffective rates in the army were in the order of their importance: Venereal diseases, tuberculosis, articular rheumatism, malarial fevers, dysentery, acute bronchitis, typhoid fever, diarrhea and enteritis, and measles. While the infectious diseases generally showed a diminished prevalence, there is unfortunately no improvement in the sick rate for venereal diseases, which caused during the year more sickness and nonefficiency than all the other diseases named in the preceding sentence. As regards venereal diseases the American Army maintains its bad eminence as compared with the armies of the other great nations as reported. The number of venereal infections during 1909 shows an increase over not only the preceding year, but over any other year of which there is record in this office, except 1905. The number of men constantly excused from duty averages 975, the equivalent to more than an entire regiment at its peace strength. While it is proper and right that men suffering in this way from the results of their own indiscretions should have the best professional care and treatment, it seems unnecessary that they should draw pay while rendering no service to the Government. If Congress should authorize the stoppage of pay in the case of men unfitted for duty on account of venereal diseases and alcoholism, it might exercise a deterrent effect which would be valuable in conjunction with other methods adopted by the military authorities to check the ravages of these diseases.

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The value of preventive medicine is evidenced by the steady and continued fall in the rate of prevalence for malaria and typhoid fever. The latter is to be accounted for in part by the large number of vaccinations against typhoid fever which have been made during the year, the Medical Department by an active propaganda having secured more than 13,000 volunteers who have submitted to this slight operation without injurious results in any case. It is thought that if this preventive measure were introduced systematically there would be no difficulty in maintaining an army practically immune against this formidable infection which is, in time of war, more of a menace to the efficiency of an army in the field than any other disease.

Vaccination for typhoid.

Alaska, as in former years, had the best record of health, in which it decidedly excelled the United States, which stands second, followed by Porto Rico, Hawaii, and the Philippines in the order named. The rates for the Philippines, however, improve year by year, and now approximate more closely to those of the United States than those of the United States do to Alaska.

Diseases in colonial possessions.

The diseases giving the highest noneffective rates among American troops in the Philippines aside from the venereal group were malarial fevers, dysentery, and dengue. The principal causes of death were wounds 20, dysentery 14, diseases of the heart 8, tuberculosis 6; deaths occurring in the United States from diseases contracted in the Philippines being credited to the latter. No case of cholera occurred among American troops in spite of its prevalence in the civil population, a fact that speaks well for the sanitary service and also for the discipline of the army.

Beriberi and cholera, while causing no losses to American troops, were the principal causes of death among the Philippine Scouts, and the former constitutes by far the greatest cause of nonefficiency as well as mortality among them.

The testimony which has been long accumulating which connects this disease with a diet composed largely of the common white rice has been recently confirmed by evidence that it is due to lack of elements containing phosphorus in the food. It has also been demonstrated that the reddish outer coat of the rice grain, which is removed in the process of hulling and polishing by machinery, contains most of the phosphorus. This layer is not removed in the cheaper red rice

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which is hulled by crude native methods, and so it is found that the use of red rice does not cause the disease. Knowledge of these facts places in our hands the means of controlling this disease by a proper dietary.

The rate of occurrence of insanity among American troops stationed in the Philippines was less during the year 1909 than among those stationed in the United States, which fact would seem to demonstrate that the popular impression as to the unfavorable influence of the service in the Tropics upon mental diseases is not well founded.

Deaths, retirements, and discharges.

The death rate from disease is the lowest which has ever occurred in the army, as shown by the medical records which extend back more than ninety years. The death rate in our army is larger and the discharge rate smaller than in foreign armies, because of the greater freedom with which, in conscripted armies, discharges are made on account of diseases which are liable to result in death. By adding together, however, the deaths and discharges so as to obtain the figure for total losses to the service from disease and injury, this figure is found to be less for the United States than for the armies of any of the other great powers except Great Britain.

The number of deaths in the enlisted strength of 75,399 from all causes was 370, of which 228 were from disease and 142 from injury, 6 of the latter being killed by hostile Moros in action or while on sentry duty. The principal causes of death from disease were tuberculosis, 43; organic diseases of the heart, 36; pneumonia, 32; and typhoid fever, 19. Fifty-one deaths occurred from gunshot wounds, 28 from drowning, and 11 from acute poisoning. No deaths occurred from sunstroke or the bites of venomous reptiles among the troops serving in the Tropics and none from the effects of cold in the garrisons stationed in Alaska and along the northern frontier. There were 33 suicides and 15 homicides.

The number of deaths among officers on the active list during the year was 18, and 51 were retired on account of disability. The two diseases causing the greatest number of retirements were organic diseases of the heart and neurasthenia, which were responsible for 9 and 7, respectively. Of the 659 officers of field rank who were subject to the annual physical test, 38 were excused. In 13 the disability was regarded as permanent, of which 6 have since retired, 1 died, and

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6 remain on the active list. Of the 20 excused for temporary disability, 5 afterwards completed the test. Seven of those excused were 60 years of age or over. Five were excused for reasons other than physical disability.

The efficiency of the present method of recruiting is shown by the steadily lessening rate of discharge for disability, which was 20.15 in 1907, 18.48 in 1908, and 16.84 in 1909.

Hookworm disease.

The fact that hookworm infection has been found in a considerable proportion of southern-bred recruits was referred to in my last report. At the recruit depot, Columbus Barracks, Ohio, a routine examination of all southern-bred recruits admitted to hospital during fourteen months, 264 in number, showed 99, or 37½ per cent, to be infected. The area from which these recruits were drawn comprises the country on both sides of the Alleghany and Blue Ridge Mountains, extending into northern Georgia and Alabama. On the other hand, 148 southern-bred recruits examined at Jefferson Barracks drawn from western Kentucky, western Tennessee, Arkansas, and Missouri, showed only 10, or 6.7 per cent, to be infected. Out of a total of 695 recorded examinations of southern-bred recruits made with a view to determining the presence of hookworm, nearly 37 per cent have been found infected. The eastern half of Kentucky furnished the greater number and the highest percentage of infections of the Columbus Barracks series. Also, of 90 cases found at the division hospital, Manila, half of which were from Southern States, Kentucky furnished more than twice as many as any other State. As the severe cases are excluded by the recruiting officers before reaching the surgeons, it is reasonable to suppose that the percentage in most of the Southern States is higher than 37 per cent.

This infection exists also in the Philippine Islands, an examination of a large number of Philippine adults, prisoners and scouts, having shown an infection rate ranging from 50 to 60 per cent. Among the general population, however, a large number of examinations, drawn from widely different regions and numbering nearly 10,000 individuals in all, made by the Bureau of Health, shows an infection rate of between 11 and 16 per cent.

This disease is apparently less prevalent and of less economic importance in the Philippines than in Porto Rico, where its prevalence has seriously affected not only the public health but the productive

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capacity of the island. The campaign against hookworm there has been carried on with energy and success since its initiation in 1900 by Maj. Bailey K. Ashford, Medical Corps, U. S. Army, and on a far larger scale than has been done anywhere else. It is believed that the information and experience acquired in this campaign will be of very valuable application in the infected portions of the United States. I have, therefore, directed Major Ashford to prepare for publication a full history of the operations against hookworm in Porto Rico. This has been done and it will be shortly issued by the Surgeon-General's Office for use in the service.

FOREST FIRES.

During August and September this year troops of the Regular Army rendered valuable and efficient service in fighting forest fires in the Northwest. On August 5 the president of the Western Forestry and Conservation Association, representing the States of Montana, Idaho, Washington, and California, telegraphed the President that very destructive forest fires were raging in the national forests of those States, threatening, unless checked, to destroy millions of dollars of property and endanger the lives of citizens, and requested that the federal troops located in those States be at once rushed to the scene of the conflagration to cooperate with the Forest Service in checking and preventing the destruction of the property of the nation. The President directed that orders be issued to the proper military authorities to render all possible aid in suppressing the fires, and instructions to that effect were immediately given to the commanding generals of the military departments concerned.

At that time most of the troops stationed in that section of the United States were concentrated in camps of instruction. The fires increased so rapidly and became so menacing to life and property in the small towns in Montana, Idaho, Washington, and Oregon, and to the forest reserves, that practically all of the troops at the camp of instruction at American Lake, Washington, were withdrawn and with other troops were sent to various points in the States affected over 2,000 officers and enlisted men being engaged in the work of assisting the Forest Service in fighting and extinguishing the fires. The fires would break out afresh after it was thought they were under control, and it was not until September 19, 1910, that the last troops were reported to have returned to their stations.

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The Secretary of Agriculture, in transmitting the thanks of his department for the assistance rendered, commended in highest terms the splendid discipline and efficiency displayed by the troops under the many difficulties and great discomforts encountered by them in this work.

MILITARY TOURNAMENTS.

At the request of local civil authorities troops of the Regular Army have participated in military tournaments since July 1, 1909, at Toledo, Ohio; Dallas, Tex.; Des Moines, Iowa; Albany, N. Y.; Nashville, Tenn.; Chicago, Ill.; and Tacoma, Wash.

There were two tournaments held at Des Moines. The interest in the first tournament, September 20 to 30, 1909, was so great that at the request of the citizens of Des Moines another tournament was held there September 26 to October 5, 1910.

The Albany tournament was an adjunct to the Hudson-Fulton celebration.

At the conclusion of the tournament at Nashville an opportunity was afforded the whole command to visit "The Hermitage," where proper exercises were held in honor of the memory of General Jackson, seventh President of the United States.

The attendance at the Chicago tournament was unusually large, over a million people having attended according to the reports.

These exhibitions of troops give the public an opportunity to see something of the duties and training of the Regular Army soldier as shown in his daily life in camp. The large number of people attending, the great interest manifested by them in the various exercises, and their commendation of the fine bearing, discipline, and behavior of the troops participating, strengthen the belief that these tournaments will conduce to a more favorable attitude on the part of the public toward the soldier, and it may reasonably be expected that they will also benefit the recruiting service by drawing the attention of many desirable young men to the advantages and opportunities which an army life offers. The following is a copy of an editorial taken from one of the leading Nashville daily papers:

THE REGULAR SOLDIERS.

Among the many good results of the Nashville Military Tournament was the bringing about of a better popular understanding and appreciation of the character and spirit of the regular army men, rank and file. The official force was, as was of course expected, found to be composed of men of education and refinement, but it was especially pleasing to observe that the private soldiers constitute a notably fine body of

men, who favorably impressed all observers not only by their discipline and skill in arms but also by their gentlemanly deportment. A too prevalent and mistaken idea has obtained that the soldiers enlisted in the regular army, especially in times of peace, are largely of a thriftless class who seek the army life because they are inapt at the usual avocations and careless of responsibilities, and therefore not of much account except as food for powder. But the men of the commands that visited Nashville showed themselves worthy of confidence and admiration, soldiers who can be depended upon for their manly bearing and patriotic spirit as well as their courage and fighting quality. They made an excellent impression greatly to their credit.

These tournaments comprise, among other things, reviews of troops, competitive and exhibition drills of different arms of the service, tests in wall-scaling, building and demolishing bridges, and exhibitions in packing. The subject is now receiving consideration by the Department with a view to increasing its utility to the army by developing its practical features to the highest point, so that people who attend these tournaments will see organizations representing the different arms of the service, with their camp and garrison equipment, as prescribed by regulations, and witness the variety, extent, and character of modern military training.

PROMOTION AND ELIMINATION OF OFFICERS.

I renew the recommendation made in my last annual report in regard to the passage of a measure providing for the elimination from time to time of a reasonable number of the least-efficient officers and the filling of their places by new officers.

The necessity for a system of eliminating officers found to be inefficient can not be disputed.

The navy has a system for elimination which has been in operation for a number of years and has proven of great value. The elimination system for the army should follow the same general lines as the navy system, with such adaptations as are necessary to meet the differing conditions of the army, and at the same time to embody the correction of defects developed in the operation of the navy system. The enactment of legislation on this subject was recommended by two of my predecessors, Mr. Taft and Mr. Wright, as indispensable to the efficiency of the army.

THE NEED FOR MORE OFFICERS.

As shown elsewhere in this report, the number of officers absent from their commands on detached service on June 30, 1910, was 728. This is an increase of 19 compared with the corresponding date last

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year, when more than a third of the captains of the mobile army were absent from their proper commands on detached service of such a nature as to cause them to be absent for some time, and only about one-half of the companies of the mobile army were commanded by captains.

It is desirable to keep at least two officers on duty with each organic unit of the army. With a view to approximating this condition, so far as feasible under existing conditions of supply and demand affecting the personnel, I gave an order on June 10, 1910, directing that every officer on detached service who could possibly be relieved from such duty be sent to join his proper command, and that whenever possible retired officers available under the law be detailed or substituted for those on detached service from their line organization. In order to carry these instructions into effect, the chiefs of bureaus, the chairman of the Isthmian Canal Commission, and other departments of the Government having detailed officers not provided for by law, were furnished with lists of officers detached from their commands, with instructions to report immediately the names of those officers who could be spared at once and to submit at the earliest practicable moment a memorandum giving any urgent reasons why the other officers named on the list should not be relieved.

A few officers were restored to their line organizations in consequence of this order, but the net result was disappointing, nearly all of the chiefs of bureaus and other official heads to whom letters were sent insisting that they could not spare anybody.

An analysis of the table on pages 8 and 9, giving the purposes for which the 728 officers were detached, shows that about 40 per cent of the total number on detached service June 30, 1910, were on duty as instructors or students at the different institutions embraced in the military educational system of the army; about 9 per cent in giving military instruction at civil educational institutions having a military department; about 10 per cent on active military duty necessary to complete the army organization as prescribed by law; about 16 per cent engaged in recruiting the army; and about 17 per cent in military duties connected with the administration of the army as required by law. The remaining 58 were detailed away from the army on duties not strictly connected with the army, but having more or less of a military relation, 25 of these officers being on duty with the Isthmian Canal Commission, 16 with the Philippine

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Government, and 3 with the Cuban Government. Of the entire number of detached officers less than 8 per cent were engaged on duties that are not strictly of a military character and necessary to the maintenance of the military establishment, directly or indirectly, and none on detached duty that is not required or authorized by law.

The experience of this year is but a repetition of the experience of past years in this matter, which has demonstrated that the services of some 600 or 700 officers are necessary for duty other than that with troops, and that this necessity is a permanent one that can not be avoided. Every effort has been made to reduce the number of officers on detached service, but the duties upon which they are engaged are such that it has been found impossible to reduce the number without seriously interfering with the performance of some military or civil duty in accordance with existing law or regulations. The Department always endeavors to employ suitable retired officers on every duty for which they are fitted, and before an officer on the active list is detached for any duty a careful study is made of all available retired officers with a view to detailing a retired officer, if possible, instead of one on the active list. But the number of retired officers available is necessarily limited under the present law, which makes active service optional with retired officers. On June 30, 1910, 89 retired officers were on active duty, an increase of 4 during the year.

The only satisfactory way to prevent the very bad effects of this necessary condition upon the discipline and instruction of troops is by the enactment of legislation providing a sufficient number of officers for the performance of all the various duties which the army is required by law to perform. Such a measure (Senate 2671) passed the Senate in the first session of the Sixtieth Congress and was referred to the House Committee on Military Affairs, but was never reported therefrom. It was again introduced in the first session of the Sixty-first Congress as S. 1024, and in the second session of the Sixty-first Congress as H. R. 17408, but after being referred to the Senate and House committees on Military Affairs, respectively, no further action was taken on either bill. These bills provided for 612 additional officers.

I regard the increase in the number of officers of the army substantially as proposed in this bill, and the elimination of the least efficient officers, as two of the most important measures for increasing the efficiency of the personnel of the army.

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I renew the suggestion contained in my last annual report for the modification of the present law relating to the assignment of retired officers to active duty, so as to authorize the Secretary of War, in his discretion, when the necessities of the public service require it, to assign certain classes of retired officers to active duty temporarily, provided their health and physical condition will permit of efficient performance of duty.

GENERAL-SERVICE CORPS.

It is hoped that during the present session of Congress some legislation will be passed providing for a corps of enlisted men to do for the army such work as that of clerks, engineers, firemen, overseers, carpenters, blacksmiths, packers, teamsters, and laborers, which is now done by a large force of civilian employees, and soldiers detailed on extra duty.

PHYSICAL EXAMINATIONS AND TESTS FOR FIELD OFFICERS.

In my last annual report I called attention to the inadequacy of the system of physical tests then in force to accomplish the full object of the tests, in that they only required officers to be fit once a year instead of requiring them to keep themselves continually in a good physical condition. The addition of regular physical exercise and training was suggested, and in accordance therewith the system has been modified as indicated in General Orders 148, July 30, 1910, which requires all officers of the active list of the army who are on a duty status to keep themselves at all times in a fit physical condition to perform active duty with troops under war conditions by means of regular and systematic physical exercise throughout the year. The kind and amount of such exercise and the conditions under which it shall be taken and all other similar details are left to the discretion of post commanders with a view to their adaptation to local conditions of climate, duty, individual officers, etc.; while department commanders are required to see that the orders of the post commanders are adequate to secure the physical conditions above prescribed and to enforce conscientious compliance with General Orders 148 throughout the limits of their commands.

The annual riding tests of 30 miles each day for three days in succession are continued. One of these rides must be made within six hours and thirty minutes and the other two within seven hours and thirty minutes each, including proper rests. Unless the annual

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physical examination shows that it would seriously endanger his health, every officer on the active list of the army above the grade of captain is required to take this riding test, except as follows:

For field officers of the Coast Artillery Corps, instead of the riding test as described above, a marching test is allowed, consisting of a march of 50 miles, to be made in three consecutive days and in a total of twenty hours, including rests; the march on any one day to be during consecutive hours.

Officers of the permanent staff corps and departments, who are not detailed from the line, who are engaged upon work of a technical character and who have reached an age and rank which render it highly improbable that they will ever be assigned to any duty requiring participation in active military operations in the field, may, upon their own application, be excused from the physical test prescribed in the new order.

The substantial change made by the new order consists in the provision made to insure a continuous good physical condition for all officers of the active list of the army on a duty status.

MILITARY ACADEMY.

On September 1, 1910, there were 416 cadets at the Military Academy as compared with 411 on the corresponding date the previous year. Included in this number were 2 cadets from Cuba, 1 from Costa Rica, 1 from Ecuador, and 1 from Venezuela.

The corps of cadets is far below its present authorized strength of 533, which will be materially increased by an indeterminate addition under the act approved April 19, 1910, which provides that for a period of six years from July 1, 1910, whenever any cadet shall have finished three years of his course at the Military Academy his successor may be appointed. It is thought by the superintendent of the academy that this will result in a much larger class for next year.

At the present time there are 122 vacancies for the appointment of cadets. These vacant cadetships, together with 179 additional cadetships that will be open to the appointment, in 1911, of the successors of the members of the classes to be graduated in 1911 and 1912, are to be filled by the appointment of cadets who are found qualified at the examination to be held in January, 1911.

I think it would be desirable if some new legislation could be secured in regard to the admission of foreign students to the Military

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Academy. In the absence of any general authority of law it becomes necessary, whenever application is made for such an appointment, to secure special legislative authority in each separate case. It would avoid a great deal of inconvenience and delay if some general provision of law were enacted by which the President would be authorized, in his discretion and subject to appropriate conditions, to appoint not to exceed a specified number of foreign cadets for each academic year, it being understood that the United States would be reimbursed for the actual cost of maintenance of such foreign students.

IMPROVED EQUIPMENT FOR TROOPS.

Infantry equipment.

In my last annual report mention was made of the systematic attempt which was being made for the first time to determine the proper equipment and load for the infantry soldier through an exhaustive consideration of the subject by a board which was convened at Rock Island Arsenal April 28, 1909, consisting of five infantry officers and the commanding officer of that arsenal. The recommendations of this board were embodied in its report of April 5, 1910, and were approved with a few modifications.

With reference to so much of the equipment as pertains to the Ordnance Department, such as the canteen and cover, first-aid pouch, haversack, kit bag, wire cutter, revolver, etc., action was immediately taken to manufacture a sufficient number to equip eleven battalions of infantry, with the object of equipping one battalion with the new equipment at as many of the camps of instruction held during the past summer as possible, in order that the new equipment might be demonstrated during the exercises at the camps. It was hoped that it would be possible to forward such equipments to the camps of instruction at Fort Riley, Kans., Atascadero, Cal., and Fort Benjamin Harrison, Ind., but this was impossible, as the canteens could not be completed in time and it was deemed inadvisable to send part of the equipment.

Rock Island Arsenal is now engaged in the manufacture of a sufficient number of the new equipments to supply the infantry and engineers of the army. It is hoped that they will be completed before the close of the fiscal year 1911.

Some changes were approved in the articles of infantry clothing and equipment furnished by the Quartermaster's Department, and

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standard samples and specifications for these articles are now being perfected, and when adopted a supply will be procured as early as practicable.

Cavalry equipment.

A similar board of officers has been in session at the Rock Island Arsenal since the latter part of April, 1910, for the consideration of the subject of cavalry horse equipments, personal equipments of the cavalry soldier, and the cavalry pack. This board is considering the equipments in use in the principal foreign armies, and a large variety of experimental equipments. It is expected that the conclusions of the board will result in the adoption of superior equipments for this branch of the service.

MILITARY AERONAUTICS.

Aerial navigation is attracting world-wide attention. Marked progress has been made in this art during the past year. Its possible influence upon the art of war is much discussed among military authorities the world over. Recently in Berlin and Paris opportunity was afforded me to witness aviation tests that were being made there by the military, and I was impressed with the interest and activity displayed in the development of this new art with special reference to its possibilities for use in the military service.

Germany and France continue to lead in the development of air craft for military purposes. Germany has specialized in the development of the dirigible balloon, while France has paid more attention to the development of the aeroplane. Information from abroad indicates that at the present time Germany possesses 14 military dirigible airships and a number of aeroplanes; France 7 military dirigible airships and 30 aeroplanes. Reliable information from France, under date of September 6, 1910, states as follows:

> The French aerial fleet will shortly be increased by 30 units. The minister of war has in fact given an order for 10 Bleriot monoplanes and 20 Farman biplanes, 7 of which can carry two passengers in addition to the pilot. The Bleriot apparatus will be delivered within a month, and our officers will be in possession of the Farmans in three months at the latest. It will therefore be 60 aeroplanes that France will be able to place in line before the end of the year.

Late information received from France also indicates that the French Government has recently ordered 11 new dirigibles of different dimensions, whose delivery will take place at different times within the next twelve months.

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The following is an extract from a report of an officer of the United States Army on the autumn maneuvers of the French army from September 15 to September 18, 1910:

But the most striking thing was the aeroplane. The French have made wonderful progress in this respect. I saw Lieutenant Bellenger in his monoplane rise right out of a wheat-stubble field. The biplanes and monoplanes were everywhere. They traveled with great speed and must have seen everything except where the troops could be concealed in the woods. An efficient aeroplane corps is certainly indispensable to an army.

The United States, which was the first nation officially to recognize the aeroplane for military purposes and which conducted at Fort Myer, in 1908, the first public flight of a heavier than air machine has since that date made no addition to its aeronautical equipment, which at present consists of one small practice dirigible balloon, one Wright aeroplane, and three small captive balloons; nor to its trained personnel, the Signal Corps at present having but one lieutenant and nine enlisted men on duty in connection with aeronautics. There is but one officer who is a licensed pilot for free balloons.

It is contended by some that dirigible balloons and airships will at best prove to be of doubtful utility in warfare. Others hold that the United States would better postpone expenditures until the art has reached a more advanced state. The fact remains that all European first-class powers are devoting a great deal of attention to the subject of military aeronautics, and are displaying marked activity in the development and supply of both the dirigible and the aeroplane for war purposes, while the United States is practically at a standstill in this matter. In my judgment the time has come when it would be wise to make appropriations adequate for providing the Signal Corps with a reasonable number of the better type of machines for instruction purposes and for fieldwork.

SEACOAST DEFENSES.

During the past fiscal year three 10-inch guns and 46 rapid-fire guns have been added to the number of guns actually available for service at our seacoast defenses, and the following table shows the status of the emplacements at these defenses on June 30, 1910:

Emplacements.	12-inch mortars.	12-inch.	10-inch.	8-inch.	Rapid-fire.	Total guns of all calibers.
Completed and guns mounted	376	105	129	96	480	1,186
Ready for armament	.....	2	4	3	41	50
Total	376	107	133	99	521	1,236

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About 85 per cent of the guns called for under the plan of the National Coast Defense Board have been mounted, including heavy guns, mortars, and rapid-fire guns.

14-inch guns.

Three 14-inch guns of the wire-wrapped type were completed during the year. The first of these is undergoing a test which so far has been satisfactory. All seacoast cannon of 6-inch caliber and over are now being manufactured by this method of construction, which produces guns equal in efficiency to the guns of the built-up type heretofore in general use and costing about 20 per cent less.

As stated in previous reports the 14-inch gun has been adopted for future construction in place of the 12-inch gun for the defense of wide channels and harbors, where the highest power is required.

The work of modernizing the older batteries has been carried on during the past year as far as practicable with the appropriations available for that purpose, but, owing to lack of funds, this work has necessarily been limited to the manufacture and installation of ammunition hoists and to such additions and improvements to seacoast gun carriages as will keep them up-to-date. The carriages that have been modified are giving excellent service and demonstrate that at a comparatively small expense carriages of the older types can be brought up to a rapidity of fire and a general efficiency almost equal to the latest models, the increased cost being only about 2 per cent of the cost of the installed material. The efficiency of these older carriages can be increased nearly 100 per cent whenever sufficient appropriations are made for that purpose. They can, however, be used with good results in their present condition.

The entrance to Chesapeake Bay, one of the most important points strategically on our Atlantic seacoast, is wholly unfortified, not a single gun being mounted to defend the channel between Cape Charles and Cape Henry. At another important point—the eastern entrance to Long Island Sound—additional guns are needed, although there are some already mounted there. Except for these two instances, it may be said that so far as guns alone are concerned our seacoast defense is in a very satisfactory state in all home ports.

Searchlights

But while we are well provided in the matter of guns, much remains to be done in the way of furnishing for our coast defenses those auxiliary elements of defense which are indispensable to the fullest use of the guns. In this connection attention must again be called to the importance of

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providing searchlights for our coast defenses. They are absolutely necessary for the purpose of disclosing the presence of an enemy's ships in case of an attack on a fortified harbor during the night. By their use the ships may be so illuminated as to render the work of the position-finding system and the dependent defense of the harbor nearly as efficient during the night as in daytime, while the gun and mine defenses are practically powerless at night without them. The searchlight equipment of home ports is only about one-half completed. It will require about $1,500,000 to complete the work.

After considerable experimental work and practical test by use under regular service conditions, a satisfactory type of searchlight has been developed, and during the year a number, with generating sets therefor, have been completed and delivered.

Fire-control system.

The standard fire-control system which has been installed at our principal seacoast defenses has proven to be most efficient and satisfactory. The provisional system which has been temporarily installed at all of the remaining home ports, pending the installation of the standard fire-control system as funds are appropriated, provides a means of instruction in fire-control work for all the coast artillery garrisoning the ports wherein they are installed and for the militia coast artillery reserves for those ports. About $4,000,000 will be required to complete the installation of the standard fire-control system for all guns and mortars already mounted in our home ports.

SEACOAST DEFENSES, INSULAR POSSESSIONS.

The heavy gun batteries for the defense of Subic Bay have been completed and appropriations have been made for the greater part of the work for Manila Bay, Honolulu, and Pearl Harbor. The completion of the work remaining in these last three localities is regarded as of great importance in order to afford a reasonably secure defense for these localities.

Manila Bay.

Congress at its last session appropriated $800,000 for the construction of emplacements in the insular possessions. At that time it was the intention of the department to apply this amount to finishing the emplacements on El Fraile Island and beginning work on the projected emplacements on Caballo Island; but subsequently it was learned that the completion of the work on Corregidor and Carabao islands would cost $650,000 in excess of the amounts originally estimated for these

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emplacements, and accordingly in the interests of economy that amount was allotted for completion of the work on those islands, and the remaining $150,000 of last year's $800,000 appropriation was allotted to the work on El Fraile Island, the initiation of work on Caballo Island being deferred until another appropriation can be secured.

The increase in the cost of the emplacements on Corregidor and Carabao islands over the amounts estimated is due to the fact that the original estimates were necessarily of an approximate character on account of the lack of data as to the character of sites and the cost of battery construction in the Philippine Islands.

Hawaiian Islands.

An estimate of $150,000 has been submitted to Congress to complete the emplacements now under construction at Honolulu and Pearl Harbor from appropriations heretofore made, the cost of these emplacements having been found to exceed the original estimates by that amount for the same reasons as stated above in the case of Corregidor and Carabao islands.

In this connection I invite attention to the following extract from the annual report of the Chief of Coast Artillery:

The importance of the early completion of the coast defenses of the insular ports of Manila and Subic Bays and of Honolulu and Pearl Harbor lies in the fact that such defenses are necessary not only for the protection and retention of these ports but also and of greater moment as affecting fundamentally any scheme of national defense, for affording secure naval bases and coaling stations. Without such fortified bases the retention of our insular possessions, the protection of our commerce, and the ability of our navy to conduct offensive operations outside of narrow zones bordering upon the coasts of the United States can be assured only by stationing in every possible theater of operations a fleet superior to the combined fleets of the enemy; a condition wholly impracticable of attainment. The alternative of providing well-fortified bases in our insular possessions, freeing the navy for the most effective mobilization and the widest range of action, can be carried out at a very small fraction of the cost of such a naval policy.

The insular ports that require defenses for strategic reasons were decided upon by the Taft Board and the work of fortifying several of them is now well advanced toward completion. On account of the fact that the strategic value of Manila and Subic bays, Honolulu, and Pearl Harbor exceeds that of other localities in the insular possessions, all appropriations have been applied to these localities except a small amount allotted to Guantanamo prior to the report of the Taft Board.

The urgency of the early completion of the defenses of Manila and Subic bays, Honolulu, and Pearl Harbor, therefore, can scarcely be overestimated. Whether viewed from a military standpoint or from the standpoint of the broadest national policy, the necessity for secure defenses for these localities, the sine qua non for the successful conduct of a war which involves the Pacific Ocean as a theater of opera-

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tions, must be apparent to the most casual observer. The completion of the fortification projects for these localities will involve an expenditure of only $3,828,959, and I renew the recommendation made in my report of last year that the War Department, in presenting to Congress the needs of the military service, lay special stress upon the importance and urgency of the early completion of the defenses of the insular ports now being fortified.

DEFENSES FOR THE PANAMA CANAL.

The National Coast Defense Board (Taft Board) in its report dated February 1, 1906, included a project for the provision of seacoast defenses for the termini of the Isthmian Canal at an estimated cost of $4,827,682. This estimate did not include sites or accomodations for artillery garrisons, nor did it include any provision for land defenses or accommodations for a mobile army garrison for the Canal Zone. A joint board of officers of the army and navy (the navy officers having been designated at my request by the Secretary of the Navy) was therefore appointed by me in November, 1909, for the purpose of preparing a complete project of defense for the Isthmian Canal, to include both seacoast and land defenses and accommodations for the necessary garrisons. This board visited the Isthmus of Panama, and under date of August 12, 1910, submitted its final report. The following table gives the estimates of cost for the defenses recommended by the board, for the necessary accessories for use therewith, for the construction of permanent posts, and for the preparation of camp sites; but does not include the cost of construction for naval purposes:

Surveys	$62,000
Purchase and reclamation of sites	1,200,000
Emplacements, seacoast batteries	6,027,000
Guns and carriages, seacoast batteries	2,324,000
Ammunition, seacoast	1,382,288
Power plants, seacoast	138,000
Searchlights, seacoast	244,800
Fire control, seacoast	370,755
Field fortifications	282,000
Camps	240,000
Permanent posts, coast artillery	1,834,000
Permanent posts, mobile army	5,442,000
Total	19,546,843

The report continues:

The board is unable to make a close estimate of the total cost of construction of the naval stations for the reason that the scope of the stations has not been definitely indicated to it by the Navy Department. In any event the principal point to be settled in these stations is the location of the dry docks, and that can not be settled

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without examinations and borings. While the above total does not, therefore, include the naval establishments on the Isthmus, the board records its opinion that naval establishments provided with such facilities as the Navy Department shall consider necessary are an essential part of the defense of the canal, and should be provided equally with the projected land defenses.

It is conservatively estimated that the canal will be completed and in use by January 1, 1915, and it is quite possible that it may be completed before that date. As it will require several years to construct and emplace the proposed armament, if it is to be done in an orderly and economical manner, the initiation of work on these defenses should not be deferred beyond the close of the present fiscal year, if they are to be completed by the date of completion of the canal. The board therefore recommends that an estimate be submitted to Congress this year for $19,546,843, for the purposes indicated in the above table, with recommendation that the expenditure of this sum be authorized and that the sum of $7,000,000 thereof be appropriated at the next session of Congress and made immediately available for expenditure toward the execution of these purposes with a view to their completion within three years; and it recommends that the further sum of $2,000,000 be appropriated at the next Congress and made available immediately and until used, for expenditure toward the creation of the necessary naval establishments, including complete surveys; in all, $9,000,000 to be made immediately available.

Pursuant to this recommendation, Congress has been asked in the estimates for the next fiscal year for continuing the construction of the Isthmian Canal, to authorize an expenditure of $19,546,843 for the fortification of the termini of the canal, including the construction of posts for the permanent garrison, and of this amount to appropriate and make immediately available $7,000,000 toward the execution of the project of fortification, with a view to the completion of the entire project within three years, and also to appropriate and make immediately available the additional sum of $2,000,000 toward the creation of naval establishments in the Canal Zone as a necessary part of the defenses of the canal.

QUARTERMASTER'S DEPARTMENT.

Specifications for supplies.

To open and encourage competition to the fullest extent possible and at the same time materially to decrease the cost of material required for clothing, for forage, and for articles of equipment and construction for the army, the Quartermaster's Department has eliminated from specifications many of the distinctive features which heretofore have differentiated them from the ordinary commercial practice and requirements. This will result in increased competition and will greatly extend sources of supply in case of emergency.

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Many improvements and modifications have been made in material and workmanship of clothing and equipage, so that practically the only characteristics which remain to distinguish the garments worn by soldiers from similar well-made articles of high grade found in the trade are the special colors and forms of cut of articles of outer uniform.

Clothing.

After consultation with the Bureau of Grain Standardization, Department of Agriculture, the specifications for forage have been modified so that the best grade of forage in the vicinity where needed may be accepted. This was done with a view to bringing the description and classification of various kinds of grains used for forage in the Quartermaster's Department in line with the practice of associations and large dealers in such grain in all parts of the country. The influence of the changes made has already been felt in more active competition for supply of the large quantities of forage required in the Philippine Islands.

Forage.

On account of the endless variety in forms and dimensions in which ordinary commercial plumbing fixtures are made and handled by the trade some restriction was deemed necessary as to their use in public buildings. Exhaustive consideration has been given to this matter by a board in which the Treasury, Navy, and War departments each had a representative, and new specifications have been compiled from those that already existed in each department, with modifications conforming to the standards of the manufacturers as far as practicable considering the differences in the fixtures of the several manufacturers. After the revised specifications were prepared the principal manufacturers of the country were visited and the specifications gone over in detail with their managers and made to accord with the views thus reached as to requirement of the best commercial practice. The printing of these specifications embodying the conclusions of the manufacturers and the board will, in the belief of the board and also of the manufacturers, result in making a uniformity of plumbing fixtures never before known in the plumbing trade. All of the manufacturers expressed the opinion that the commercial world will largely adopt the fixtures called for in these specifications.

Plumbing.

The remount depots established at Fort Reno, Okla., and Fort Keogh, Mont., are being operated in accordance with the plan outlined in the Quartermaster-General's report for 1907. The system was adopted upon the

Remount system.

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belief that it would result in furnishing to troops horses of a better class and in a better condition and better broken and trained than it was possible to secure by the former method of purchase. Uniformly gratifying reports have been received as to the class of horses furnished for the mounted service through the remount depots. The system has now been in operation long enough to demonstrate that it is both satisfactory and economical and a great improvement over the old method of supplying remounts by the purchase of older horses under contract or in open market. The quality of mounts has greatly improved, and it is believed that the present system insures, within a very few years, a most excellent mount for the entire service.

Reports received from purchasing officers indicate that in all parts of the country there is a scarcity of horses suitable for the mounted service. It is believed that this shortage is due to the discontinuance of the breeding of well-bred horses of the type required for military purposes because of the restricted market, there being no general public demand for this type. Accordingly, I invoked the assistance and cooperation of the Secretary of Agriculture in formulating a plan for encouraging the breeding of horses suitable for military service. What is believed to be an excellent and practicable plan has been determined upon after conferences by representatives of both departments, and will be carried into effect by the Department of Agriculture. It is hoped that satisfactory results will be obtained, and that in a few years there will no longer be a scarcity of well-bred horses of the type required for the mounted service.

Decentralization system.

Department commanders report that the new methods of procuring supplies and accounting for them under the decentralization system of the Quartermaster's Department which have been in operation now for two years are working most satisfactorily, supplies being received more rapidly than at any time in the past. Under the new system quartermasters are stimulated to administer affairs with the utmost economy consistent with efficiency and to have everything that may be required for the troops, without being overstocked with supplies. The one great aim of this system is to lodge the duty and responsibility of furnishing supplies for troops with the officer on the spot and to encourage and develop his abilities in that direction. Within reasonable limits he is given full discretion, and it rests with him to demon-

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strate his merit and to justify the confidence that has been imposed. The results of the practical operation of the system have been in general extremely gratifying.

It happens every year in the service of the army that claims arise against the War Department for damage done to private property. These claims may naturally be grouped into three classes: (1) Those which are bound to arise every year; (2) those which arise at less frequent intervals; and (3) those whose occurrences are occasional and can not be foreseen. Of the first class is damage done by the firing of the heavy guns of our seacoast defenses. Every year when target practice takes place in some localities it is unavoidable that window glass will be shattered and plastering knocked down in houses belonging to citizens in the vicinity. Sometimes window and door frames and doors are thrown out of plumb by the concussion. It has been the custom to have claims for such damages immediately investigated and the actual amount of damage determined and reported upon by a board of competent officers, and the conclusions of the department based upon those reports are submitted to Congress with recommendation for settlement of the claims. It generally happens, however, that several years elapse before an appropriation is made, so that in addition to the annoyance and inconvenience caused by the firing of the guns citizens whose property is damaged are compelled to submit to delay in reimbursement for the damage inflicted. Every year the War Department is importuned to do away with target practice with the big guns at various places on the ground of injury done to private property. As a rule, requests of this kind must of course be denied, practice with the guns being essential to the maintenance of the efficiency of the Coast Artillery. Every effort is made by the department to reduce to the minimum the discomfort caused to citizens by the heavy firing. In line with this effort it is desirable that at least in those cases where it is known that damage will be inflicted annually, provision should be made by Congress for the prompt reimbursement of the damages to private property as ascertained by boards of army officers appointed for the purpose, their reports to be subject to approval by the Secretary of War. Such a course was authorized by the act of April 23, 1904 (33 Stat., 265), making provision for joint armv and militia encampment, maneuvers, and field instruction, which worked well and avoided much of the dissatisfaction caused

Claims for damage to private property.

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to citizens in previous encampments and maneuvers. This provision reads as follows:

* * * For purchase of supplies for the Quartermaster's and Ordnance Departments, including regular supplies, incidental expenses, barracks and quarters, transportation of the militia and its supplies, clothing and equipage, leases of land and damages of property, six hundred thousand dollars.

It is hoped that some adequate legislation of a similar character may be made for the claims above indicated. At the present time there are 150 cases, amounting to $18,558.14, which have been investigated by this department and recommended to Congress for settlement. They are published in House Document No. 177, Sixty-first Congress, second session; House Document No. 519, Sixty-first Congress, second session; and House Document No. 897, Sixty-first Congress, second session. They are all for damages incident to the training, practice, and operations of the army—most of them for damage caused by the firing of heavy guns. Some of them have been before Congress since December, 1908, and no provision has yet been made for the payment of any of them. There are several additional claims now pending in the department which have been investigated and will be reported to Congress at the present session. The claimants in all these cases have been advised from time to time of the status of their claims, and that settlement awaits an appropriation by Congress. Naturally, however, they look to the War Department to expedite the matter, as being immediately responsible for the damage. In submitting the report above referred to, I feel that it is incumbent upon me to submit an estimate for an amount large enough to cover the payment of all such claims as remain unpaid, where the amount of damages has been ascertained by the War Department and payment thereof will be accepted by the owners of the property in full satisfaction of such damages, and also to suggest a small additional appropriation sufficient for the ensuing fiscal year.

ORDNANCE DEPARTMENT.

Manufactures.

During the fiscal year ended June 30, 1910, there was expended $7,446,666.78 at the five large manufacturing arsenals maintained by the Ordnance Department.

The largest expenditures were at Frankford Arsenal, aggregating $3,463,904.75. Most of this was for ammunition—$2,452,723.44 for small-arms ammunition and $850,083.16 for artillery ammunition.

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Articles manufactured at Rock Island Arsenal cost $2,189,239.92, the principal items being $570,769.03 for personal equipments, $487,207.55 for mobile artillery and equipments, supplies, etc., $448,813.71 for small arms and parts, and $290,836.74 for horse equipments.

At Springfield Armory the manufactures cost $1,095,841.16. Of this amount, all but about $75,000 was spent for small arms and parts.

The manufactures at Watervliet and Watertown arsenals cost, respectively, $404,681.75 and $292,999.20. Practically all of the expenditures at Watervliet Arsenal, which is engaged principally in the manufacture of the large guns of the seacoast and mobile artillery, were for these guns and artillery equipment and supplies. At Watertown Arsenal $250,935.62 (about $42,000 less than the total expenditure) was expended for gun carriages and artillery equipments and supplies.

Cost keeping.

For many years the Ordnance Department has given particular attention to the system of accountability for the funds expended by it, and to seeing that only the amount allotted to each particular manufacture is expended upon the object for which the allotment is made. A detailed and comprehensive system of keeping track of the cost of all labor and material used is maintained, including the pay of officers and enlisted men on duty at the manufacturing arsenals, and clerical expenses not paid out of manufacturing appropriations, and the results are stated by the Chief of Ordnance to be accurate and reliable. In addition, in all statements of costs, and in its price lists issued for the use of the service, there have been included those overhead charges and administrative expenses, such as interest on the value of the plant, depreciation, fire loss, cost of maintenance of buildings, and all other items of cost, that private manufacturers must take into account, except profit. The Ordnance Department employs to a large extent the piecework system of compensation, and the salaries paid for clerical and other assistance have not been high, while the wages of the workmen have been based upon the scale of wages paid for similar work in the vicinity of the arsenal where the men are employed.

Concerning this subject the Chief of Ordnance remarks as follows:

The statement has been rather frequently made during the past year that the Government's methods are not economical, and considerable stress has been laid in the public prints, and even in government publications, upon the alleged fact that

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very little is known about the actual cost of articles produced in the industrial operations of the Government, and that millions of dollars might be saved annually if these operations were conducted with businesslike efficiency. The Ordnance Department has not been specifically included in this statement, but neither has it been specifically excluded, and the department shares in the general charge of looseness of administration which is applied indiscriminately to government industries. So far as this department is concerned the charge of looseness is not founded upon fact, nor upon any examination or close knowledge of the administrative methods which are followed.

* * * * * * *

In my annual reports for several years I have drawn attention to this subject, have stated in some detail what the financial methods of the department are, and have given many specific instances of less cost of articles manufactured at the arsenals than that of the same articles purchased from private manufacturers. I do not quite see how I could have more plainly set forth the facts necessary to preserve this department from the general charge which has been made, and which can not be otherwise than discouraging to the skillful and conscientious officers in command of its various manufacturing establishments, and their assistants, who have been successful in seeing that the Government has had a suitable return from the funds which have been confided to their charge. I invite comparison of the business and industrial methods in practice at the arsenals with those of the best conducted private establishments in the country.

In a report to the President on the subject of cost keeping in the Government service made December 29, 1906, by the Committee on Department Methods, more generally known as the "Keep Commission," the following statement appears:

It is interesting to note that the earliest publication on the general subject was from the pen of an officer of the Ordnance Department, United States Army, and had particular reference to the systems in use in the arsenals of the United States.

The officer referred to is Capt. Henry Metcalfe, now retired, and his book, entitled "Cost of Manufactures and the Administration of Workshops," was published in 1885, twenty-five years ago.

The Ordnance Department is constantly devoting attention to the subject of cost keeping and management of its manufacturing establishments, and is making, from time to time, such further improvements in the interest of increased accuracy and economy of methods as experience and study indicate.

A comparison of the costs of small-arms ammunition manufactured at the Frankford Arsenal with the costs of that procured under contract from private manufacturers gives the following results: For 1909 the contract price of ball cartridges, caliber .30, was $34.72 per thousand, and for 1910, $34.87, while the cost of these cartridges manufactured at the Frankford Arsenal, including all overhead

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charges, was $30.18 for 1909—a decrease of about 13 per cent—and $29.11 for 1910—a decrease of about 17 per cent.

At Springfield Armory the introduction of many improvements in methods of manufacture during the year resulted in a further reduction of 61 cents in the actual cost of each rifle without reducing the workmen's wages in any case. On the contrary, over one-fourth of the 934 employees have had an increase. The above reduction in the cost of manufacturing the rifle, together with the reduction of 50 cents per rifle reported last year, has resulted in an actual saving of $85,474.25 in the manufacturing cost of rifles at Springfield Armory during the fiscal year 1910. In addition to this large saving on the rifle, corresponding savings in the manufacturing cost have also been made on nearly all other articles fabricated, and this at a time when the price of both labor and material have been advancing.

The factory cost of cannon powder manufactured at the new army powder factory at Picatinny Arsenal, Dover, N. J., was 49½ cents per pound a year ago, but the last lot manufactured cost about 39½ cents, a reduction of 20 per cent. To these costs should be added the overhead charges for interest, depreciation, etc., which amount to about 16.4 cents per pound, making the total cost of the last lot of powder manufactured 55.9 cents per pound. The price for cannon powder procured under contract with private manufacturers is 60 cents per pound.

The reasons why the Ordnance Department has been able to manufacture its products more cheaply than private manufacturers, contrary to the commonly accepted opinion that government manufactures cost more than similar articles can be purchased from private concerns, will be apparent when it is considered that the only distinct advantage which the private manufactory has over the government manufactory consists in the fact that the Government is limited to an eight-hour day and is required to pay for fifteen days of vacation each year, for seven national holidays, and for Saturday half holidays during the summer months; while, on the other hand, the Government has the great advantage in a comparison of costs of not being obliged to add a charge for profit, and pays less interest on the value of the plant, because the Government can borrow money at a lower rate. The Government's charge for fire loss is only about one-half what the private manufacturer must charge, and the salaries which

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the Government pays for its high class of superintendence are generally not more than one-half those paid for similar positions in private plants.

Under these conditions it is reasonable to expect that the actual cost of manufacturing by the Government should be less rather than greater than the cost of the same article procured from a private manufacturer.

Field-artillery material.

The Chief of Ordnance has called attention to the inadequate supply of field-artillery guns, carriages, and ammunition, due largely to lack of appropriations. The quantity of field-artillery material provided for to date is proportionately less than that of any other class of fighting equipment. The types needed have been developed and some of each are under manufacture, but the appropriations do not permit of the production of any considerable quantity. In the view of the Chief of Staff this shortage of field-artillery material is the most serious feature of the present military situation and one that should be immediately corrected.

ENGINEER DEPARTMENT.

River and harbor improvements.

The total amount actually expended under the direction of the Chief of Engineers in connection with the improvement of rivers and harbors during the fiscal year ended June 30, 1910, was $27,393,490.63. This is $6,307,119.36 less than the expenditures for the fiscal year 1909. In the annual report of the Chief of Engineers the different projects for river and harbor improvements are described in detail, giving a history of each project and a description of the work which has been done from the inception of the improvement to the close of the fiscal year, together with statistics of the commerce of the locality and other pertinent information. The following table shows the different items for which the expenditures were made during the fiscal year 1910:

Rivers and harbors (general, including examinations, surveys, and contingencies)	$25,034,454.77
Removing sunken vessels	49,522.41
Operating snag and dredge boats on upper Mississippi, Illinois, and Minnesota rivers	25,000.00
Removing obstructions in Mississippi, Atchafalaya, and Old rivers	96,782.04
Gauging waters of the Mississippi River and its tributaries	8,794.87

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Maintenance of South Pass channel, Mississippi River:	
Permanent annual appropriation	$100,848.59
Special appropriation	26,791.50
Examinations and surveys at South Pass, Mississippi River	11,000.00
Operating snag boats on Ohio River	34,497.89
Operating and care of canals, etc	1,889,687.31
Prevention of deposits in New York Harbor	80,724.29
California Débris Commission (expenses)	12,601.48
Permanent International Commission of the Congresses of Navigation	2,639.44
International Waterways Commission	20,146.04
	27,393,490.63

In addition to the foregoing the sum of $2,292,092.39 was expended for the work under the charge of the Mississippi River Commission, and $32,086.32 was expended in continuing the enlargement of Governors Island, in New York Harbor. As compared with similar expenditures for the preceding fiscal year, these sums show a decrease of $760,582.91 for the Mississippi River Commission and of $156,447.51 for the enlargement of Governors Island.

Waterway from Lockport, Ill., to the Mississippi River.

Under the provisions of section 1 of the river and harbor act of June 25, 1910, a board, consisting of Brig. Gen. William H. Bixby, Chief of Engineers, U. S. Army; Col. C. McD. Townsend, Corps of Engineers; Maj. Charles Keller, Corps of Engineers; Maj. J. B. Cavanaugh, Corps of Engineers, and Mr. John Bogart, civil engineer, was appointed to consider and report upon the construction of a waterway from Lockport, Ill., by way of the Des Plaines and Illinois rivers, to the mouth of the Illinois River, and upon the improvement of the Mississippi River from the mouth of the Illinois River to the mouth of the Ohio River; the said board to report upon the feasibility of such waterway and the most advisable depth and dimensions therefor, in case the same is recommended; also upon such measures as may be required properly to preserve the levels of the Great Lakes, and to compensate, as far as practicable, for the diminished levels in said lakes and the connecting waters thereof by reason of any diversion of water from Lake Michigan, etc. The said act made an appropriation of $1,000,000, subject to the provision that "until these plans and estimates have been submitted and a project for the improvement adopted by Congress the appropriation of $1,000,000 herein made shall not be available for expenditure."

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Preliminary meetings have been held by the board at both Washington, D. C., and Chicago, Ill., and a personal inspection made of the waterways between Chicago and St. Louis involved in this investigation.

Owing to the late date at which the river and harbor bill became a law and other attendant delays, including the compilation of data on certain phases of the subject not previously investigated, it has been found impracticable for the board to submit a full and complete report by the 1st of November, as contemplated by the act. A preliminary report has been made and a further report, covering at least the more important subjects named in the law, will be submitted to Congress for consideration during the present session.

Preservation of Niagara Falls.

Under date of June 29, 1906, the President approved an act of Congress for the control and regulation of the waters of the Niagara River, for the preservation of Niagara Falls, and for other purposes. This act authorized the Secretary of War to grant permits for the diversion of water, amounting to 15,600 cubic feet per second on the American side, and for the transmission of electrical power from the Dominion of Canada into the United States to the amount of 160,000 horsepower. Under the provisions of the act various projects have been approved by the department, their purpose being to determine the effects of the diversions of water upon the navigable capacity of the Niagara River and its integrity and proper volume as a boundary stream, on the level of Lake Erie, and on the scenic grandeur of Niagara Falls.

The work involved has been carried on by the engineer officer in charge of the Lake Survey of the Corps of Engineers. During the past fiscal year a remeasurement of the flow in the canal of the Niagara Falls Hydraulic Power and Manufacturing Company was found to be necessary for an intelligent supervision of the operations of this company, the increased power being generated by it indicating an increased diversion of water. As a result of the new measurements it was found that the amount of water diverted by this company fell well within the limit allowed by its present permit.

The permit issued to the Niagara Falls Power Company in 1907 limited the use of water to 8,600 cubic feet per second, and while no limit was placed upon the amount of electrical horsepower that

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might be thereby generated, it was expected that a maximum amount of only about 65,000 electrical horsepower would be obtained. The company subsequently represented that it was entirely practicable to generate more power without diverting any greater volume of water. Observations conducted at its request have shown this to be true, it having been found that, operating with the most economical arrangement of its machinery, the company can generate about 82,000 electrical horsepower without exceeding the limit of 8,600 cubic feet of water per second allowed by its permit. The company is now operating under an arrangement of its machinery which enables it to secure an output of electrical horsepower considerably in excess of the 65,000 electrical horsepower formerly expected.

The investigation of slopes in the Niagara River was continued throughout the year except during the winter months, when ice conditions prevented.

Inspections of the operations of the power companies at Niagara Falls have been made at frequent and irregular intervals, and from the reports of these inspections it would appear that all of these companies have observed the limitations of their permits.

Attention is invited to the fact that by the terms of the original act its provisions terminated in three years from the date of its passage. By resolution approved March 3, 1909, the provisions of the act were extended two years from June 29, 1909, to allow time for completion of a treaty between the United States and Great Britain and for enactment of further legislation in connection therewith. The treaty was finally ratified on April 1, 1910, and proclaimed May 13, 1910, but the further legislation has not yet been enacted. This treaty provides for the diversion of water, but not for the importation of electrical power from Canada. Therefore, unless the act of June 29, 1906, as extended March 3, 1909, is further extended during the present session of Congress, its provisions will cease to be operative on June 29, 1911, thus terminating the authority of the Secretary of War to permit and limit the importation of electrical power from Canada.

Raising of the battleship Maine.

By an act approved May 9, 1910, Congress authorized and directed the Secretary of War and the Chief of Engineers "to provide with all convenient speed for the raising or the removal of the wreck of the United States battle ship *Maine* from the harbor of Habana, Cuba, and for the

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proper interment of the bodies therein in Arlington Cemetery;" the mast of the *Maine* to be removed and placed upon a proper foundation n the cemetery at or near the spot where 165 of the bodies of those who died through such wreck are now interred.

Consideration of the matter was begun promptly after the passage of this law, and on May 16, 1910, I addressed a letter to the Speaker of the House of Representatives advising Congress of the conclusion reached by the department that the appropriation of $100,000 made by the act was inadequate for the purposes set forth therein and giving an estimate of the cost of the proposed removal of the *Maine* at not less than $500,000 and possibly more. This led to the appropriation of an additional sum of $200,000 in the deficiency act of June 25, 1910.

In conformity with the provisions of these acts of Congress active operations have been commenced and it is hoped the work will be advanced sufficiently to permit an inspection of it to be made during the present session of Congress.

A board of engineer officers, consisting of Col. William M. Black, Lieut. Col. Mason M. Patrick, and Capt. Harley B. Ferguson, was appointed for the purpose of conducting the necessary investigations, preparing plans, and executing the contemplated work.

Preliminary meetings have been held by the board, a visit made to the city and harbor of Habana, and the necessary steps taken to a determination of the present condition of the wreck, and other conditions essential to preparation of a definite plan for its removal.

As a result of these preliminary investigations, the board has decided upon a plan which has been approved by the President. It provides for the construction of a cofferdam of interlocking steel piling, within which the wreck is to be first exposed by unwatering and the removal of overlying material, in order to permit, if desired, of a thorough examination of the condition of the wreck in its present position. This preliminary work is to be done by hired labor and purchase of materials in open market, using plant now on hand and hiring other plant as necessary.

While it is expected that the appropriations of $300,000 will accomplish all the preliminary work contemplated at present, the actual removal of the wreck and the restoration of the harbor to its original condition will require a further appropriation, the amount of which will depend upon the disposition to be made of the structure as a

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whole. It is desirable that in making such provision Congress should indicate the disposition to be made of the wreck upon completion of the work of removal.

On the occasion of their recent visit to Habana the members of the board were cordially received by the President and other officials of the Cuban Government and given assurances of assistance in every way in the prosecution of the work with which they are charged. Through the courtesy of the Cuban Government the board has been accorded the use of a storage yard, of a good dock front, and of all the floating plant pertaining to the department of public works, as well as the services of a number of its personnel. Moreover, an executive decree has been issued by the Cuban Government granting under proper conditions free entry of all machinery, apparatus, and other utensils brought into that country by this board for use in connection with this work.

THE ORGANIZED MILITIA.

Strength.

The strength of the Organized Militia, as reported at the annual inspections, is 9,155 officers and 110,505 enlisted men, a net increase of 734 over last year. This includes 140 regiments, 9 separate battalions, 7 separate companies of infantry, 69 troops of cavalry, 51 batteries of field artillery, and 122 companies of coast artillery.

Organization, equipment, and discipline.

The probationary period fixed by the militia law approved January 21, 1903, as amended by the act approved May 27, 1908, within which the Organized Militia of the States and Territories and the District of Columbia were required to conform in organization, equipment, and discipline to that of the Regular Army, terminated on the 21st of January, 1910, at which time it became imperative, under section 3 of the law, for all military units organized by the laws of any State, Territory, or the District of Columbia to conform in these respects to the regular service if they are to be considered a part of the Organized Militia.

In case it shall appear by the inspections made annually by officers of the army that any particular unit fails to conform in these matters to the requirements prescribed by the law, it will be necessary to invoke the restrictive provisions of law in regard to such unit.

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The last annual inspections established, in a general way, the fact that the Organized Militia of the United States conforms practically in organization and equipment to the organization and equipment of the Regular Army, and while it may be considered as a general proposition that there is a fair degree of conformity in matters of training, it is to be noted that the efficiency in the training of the militia for field service varies from a high to a low degree. This is due chiefly to the different standards of efficiency among the militia authorities in the several States and Territories; and these conditions, it is thought, must continue to some extent indefinitely, in view of the fact that under the Constitution of the United States the appointment of officers and training of the militia is reserved to the respective States.

Instruction.

A special effort has been made during the last year by the War Department to assist the state and territorial authorities in arranging and conducting military instruction, especially by correspondence and by supplying technical literature particularly adapted to the needs of the Organized Militia. An effort has also been made to prepare officers and men for their field duties by assembling them in camps of instruction and in maneuvering encampments in which organizations of the Regular Army and of the Organized Militia have jointly participated in field operations. All available facilities of the department and army, including officers, enlisted men, and material, have been, in so far as practicable, used to assist in this instruction and have involved the attendance and services of approximately 37,000 officers and enlisted men of the army and 70,000 of the militia.

Little more can be done than has been done during the past year in regard to instruction, until some provision is made by Congress which will allow the department to assign officers on the active list of the army to duty with the Organized Militia of the States and Territories. Owing to the large number of officers of the Regular Army absent from their organizations on detached service with the General Staff, the Administrative Staff, as instructors at the service schools and at colleges, and on other authorized detached service, it has been found necessary to limit the officers assigned to duty with the States and Territories to officers on the retired list. While it is highly desirable that officers of the active list should be made available for this duty, this can not be done until additional officers are authorized

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for the regular establishment, as provided in bills now before Congress. The urgent necessity for the passage of some measure of this kind has been mentioned elsewhere in this report.

Field army of regular and militia troops.

The year has been notable, in so far as the Organized Militia is concerned, by the publication of a War Department order which, with the approval of the authorities of certain States, establishes a paper organization of combined regular and militia troops, organized into three military divisions, constituting a field army. This is an initial movement which looks ultimately toward providing a similar combination of regular and militia troops for the whole country suitable for mobilization for field operations in case of war. It is hoped during the ensuing year to extend this organization scheme to include all of the States and Territories. It is further planned to accomplish the actual mobilization of one of the three divisions of the first field army if appropriations are granted by Congress for this purpose. Such a mobilization is considered of much importance in the tentative working out of the general defensive scheme and an adequate appropriation therefor is urged.

Coast Artillery Reserves.

The policy of the department which contemplates that one-half of the personnel necessary for manning the coast fortifications shall be provided by the Organized Militia of the seaboard States, has been successfully continued during the past year. All of the coast States have made provision for Coast Artillery Reserves except New Jersey, Delaware, and Louisiana. It is hoped these States will take definite action in this matter during the ensuing year. The Coast Artillery troops of the States participate yearly in joint coast defense exercises with the regular troops at the coast fortifications. The reports continue to be encouraging as to the possibility of so training these state troops as to make them fairly efficient in supplementing the Regular Coast Artillery in manning the coast defenses. This possibility depends, however, upon providing a suitable equipment for instruction purposes for the home armories of these troops. A scheme has been drawn up which looks to providing these armories with a dummy armament, which will enable officers and men to drill at dummy guns, including artillery subcaliber target practice, and thereby develop team work during the armory instruction period. An estimate of $300,000 has been submitted to Congress for the fiscal year 1912 to

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provide this equipment for all armories of the Coast Artillery Reserves which are now ready to receive its installation. It is hoped that the amount asked for will be made available at the earliest practicable date, as it will be impossible for the State Coast Artillery troops to receive instruction until such equipment is provided. The delay which has already occurred in providing this equipment is unfavorably affecting the interest and application of the officers and men of this arm.

Horses for mounted troops.

One of the most serious difficulties of the Organized Militia is the matter of providing horses for mounted troops. It is very difficult to arrange for any satisfactory instruction of field artillery, cavalry, and other mounted troops, unless each organization can have at least a few trained horses for instruction purposes. It has been recommended that the expense connected with supplying horses be distributed between the Federal Government and the state and territorial governments, by providing that in all cases in which the state or the militia organizations supply horses for military purposes the United States will issue forage therefor. It is thought that the issue of forage could be so safeguarded as to prevent abuse.

Defects in present militia law.

The employment of the militia in the service of the United States in time of war constitutes a fundamental part of our military system, and the existing militia law of January 21, 1903, as amended May 27, 1908, makes provision for such employment; but unfortunately the existing law does not declare the legislative intent in some very essential particulars, and in others speaks in language so uncertain as to leave that intent in doubt. For example, no means are at present provided whereby the War Department can determine in advance just what officers and troops of the militia could be depended upon for service in the event of war, and whether or not they would be suitable. This is a matter of the first importance, and I think steps should be taken to secure the correction of this and other material defects in the existing militia law.

NEW LAW FOR ORGANIZING VOLUNTEER FORCES IN TIME OF WAR.

The present law for raising a volunteer army in time of actual or threatened war was placed on the statute books piecemeal and hurriedly, partly on the eve of the Spanish war and partly after hostilities

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had actually commenced. As might naturally be expected of legislation passed in such circumstances, the plan which it provides for raising a volunteer army is faulty and inadequate to a speedy and proper organization of a volunteer force. Within a year after its passage it was considered desirable to enact a new law to provide for raising the volunteers used in the Philippine insurrection. This statute, however, was only a temporary measure, and after the volunteers raised under it were mustered out of the service the older law became again operative, but has in part become obsolete through subsequent legislation affecting the organized militia.

A comprehensive measure for the organization of a volunteer army to be raised only after Congress has made a declaration of war would be of inestimable value if the country is ever again confronted with a foreign war. Such a measure can best be formulated in time of peace and tranquillity, when the opportunity is afforded to proceed with deliberation and care in the preparation of laws adequate and indispensable for our possible war needs. The passage of such legislation will permit of the preparation of all the necessary plans for the organization, equipment, and supply of a volunteer army and the selection of places for mobilization. Without the necessary legislation all such matters must be deferred. A bill for this purpose (S. 4003, 61st Cong., 2d sess.) is now before Congress, and it is hoped that it will receive favorable consideration at the present session. Some new legislative enactment of this kind is an essential part of our national military system, and will enable the General Staff and the War College to discharge one of the most important duties for which Congress created them, and which they are now prevented from doing because of the absence of such a law. The measure in question has been very carefully considered by the department, and is believed to be adequate for the purpose. It does not call for any appropriation, nor would it cause any expenditure of public money during the years of peace.

NATIONAL MILITARY POLICY.

In order to avoid the waste inseparable from going to war without full preparation, we must be ready with a complete system for passing from a peace to a war establishment. We should undertake without further delay the problem of simplifying and perfect-

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ing the administration and organization of the army to the end that the new army of Regulars, Organized Militia, and Volunteers may pass automatically from a peace to a war basis. We have vast military resources, and if we but organize them in time of peace it will not only have a tendency to prevent war, but should war come it will enable the nation to conduct its campaigns with a greater regard for economy and efficiency than has been hitherto possible. It is futile to attempt to place the military establishment of the country upon a proper basis, having due regard to economy and efficiency, by the passage of detached legislation. In my opinion the time has come when Congress should establish a commission to determine as early as practicable a comprehensive policy for the organization, mobilization, and administration of the Regular Army, the Organized Militia, and the Volunteer forces in the event of war.

INTERNATIONAL WATERWAYS COMMISSION.

The International Waterways Commission appointed under the act approved June 13, 1902, to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada, including all of the waters of the lakes and rivers whose natural outlet is by the river St. Lawrence to the Atlantic Ocean, held numerous meetings during the year in both Canada and the United States.

Regulation of Lake Erie.

Among the various duties which were enjoined upon the commission, it was specifically required that they should "report upon the advisability of locating a dam at the outlet of Lake Erie, with a view to determining whether such dam will benefit navigation." The term dam as here used may apply to either regulating works or compensating works. Regulating works are those designed to raise the low water without raising the high-water surface; that is, to reduce the amount of oscillation in the lake's level. Compensating works are those designed to raise the general level of the lake, at high water as well as low water, without essential change in the amount of oscillation. The former being the more desirable, if feasible, have been the subject of careful investigation by the commission for several years. The conclusion which they reached being adverse to this class of works,

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it became necessary for them to consider the second kind, and as this involved considerable further delay they submitted the results of their studies upon the first branch of the subject in a report dated January 8, 1910. This report was forwarded by me to the President and was by him transmitted to Congress by his message of March 14, 1910. It was published as House Document 779, Sixty-first Congress, second session. In the investigation of the second branch of the subject additional surveys have been found necessary. Of these the field work has been completed, and the construction of the maps has made good progress. The commission expects to submit a report upon compensating works for the outlet of Lake Erie during the coming year.

Long Sault Island, St. Lawrence River.

The question of authorizing the construction of power works in the St. Lawrence River near Long Sault Island has been before Congress for several years, and has upon several occasions received the attention of the commission, but they have made no report thereon. The subject was revived by a letter to the commission dated December 24, 1909, from the House Committee on Rivers and Harbors, transmitting a copy of a bill, and requesting the opinion of the commission concerning it. In addition to the public hearings which it had already held, the commission decided to hold another, which it did, at Toronto, on the 8th and 9th of February, 1910. The Canadian members still desired time for further consideration, and it afterwards became evident that they would not be ready to join in a report in time for it to be of any service to the committee of Congress at the session then sitting. The American members therefore felt compelled to express their own views separately, which they did in a letter to the chairman of the Committee on Rivers and Harbors, dated March 11, 1910. The commission as a whole have made no report upon the subject.

Boundary between United States and Canada.

Under the treaty of April 11, 1908, between the United States and Great Britain, the commission is engaged in ascertaining and reestablishing the location of that portion of the boundary line which passes through the Great Lakes system and the St. Lawrence River. For this duty it acts under and reports to the Secretary of State.

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EXPENDITURES, APPROPRIATIONS, AND ESTIMATES.

The expenditures for the last fiscal year (1910), the estimates and appropriations for the present fiscal year (1911), and the estimates for the next fiscal year (1912) are as follows:

General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
CIVIL ESTABLISHMENT.				
Salaries	$1,812,252.36	$1,859,538.00	$1,857,938.00	$1,868,878.00
Contingent expenses, War Department	48,794.27	50,000.00	50,000.00	75,500.00
Stationery, War Department	25,121.81	25,000.00	25,000.00	
Postage to postal-union countries, War Department		500.00	500.00	
Rent of buildings, War Department	17,720.00	15,220.00	15,220.00	15,220.00
Salaries and contingent expenses under Superintendent Public Buildings and Grounds	73,577.56	79,030.00	77,590.00	83,590.00
Total civil establishment	1,977,466.00	2,029,288.00	2,026,248.00	2,043,188.00
MILITARY ESTABLISHMENT.				
Support of the army.				
Secretary's office:				
Contingencies of the army		40,000.00	40,000.00	40,000.00
Construction and maintenance of military and post roads, bridges, and trails, Alaska			100,000.00	100,000.00
Office of the Chief of Staff:				
Army War College	7,775.48	10,000.00	10,000.00	10,000.00
Contingencies, military information section, General Staff Corps	8,628.94	10,000.00	10,000.00	10,000.00
United States service schools	22,530.55	25,000.00	25,000.00	25,000.00
The Adjutant-General's Department:				
Contingencies, headquarters of military departments	6,430.05	7,500.00	7,500.00	7,500.00
Chief of Coast Artillery:				
Coast Artillery School, Fort Monroe, Va	27,986.88	28,000.00	28,000.00	28,000.00
Chief Signal Officer:				
Signal service of the army	216,295.10	250,000.00	250,000.00	250,000.00
Washington-Alaska military cable and telegraph system	87,114.60	75,000.00	75,000.00	75,000.00
Annunciator buzzer systems at target ranges	16,078.47			
Wireless telephone apparatus	27,000.00			
Wireless system in the Philippine Islands				5,000.00
Pay Department:				
Pay, etc., of the army	44,845,834.26	45,216,946.95	45,118,446.95	44,959,442.95
Subsistence Department:				
Subsistence of the army	9,234,961.21	8,200,000.00	8,700,000.00	9,083,579.40
Quartermaster's Department:				
Regular supplies	8,517,418.70	8,200,000.00	8,200,000.00	8,333,387.33
Equipment of officers' schools, military posts	6,855.77	10,000.00	10,000.00	9,350.00

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
MILITARY ESTABLISHMENT—continued.				
Support of the army—Continued.				
Quartermaster's Department—Cont'd.				
Incidental expenses	$1,989,463.01	$2,225,000.00	$2,225,000.00	$2,100,000.00
Horses for cavalry, artillery, engineers, etc	470,456.27	434,487.90	434,487.90	517,165.50
Barracks and quarters	3,463,518.00	1,600,631.00	1,600,631.00	1,856,050.00
Military post exchanges	418,009.32	70,900.00	70,900.00	40,000.00
Transportation of the army and its supplies	11,768,215.55	11,500,485.70	11,850,485.70	11,023,615.06
Transportation of officers' horses	.....	.....	.....	5,245.75
Roads, walks, wharves, and drainage	1,025,697.93	900,568.00	900,568.00	449,315.79
Water and sewers at military posts	2,565,688.99	2,584,723.00	2,584,723.00	2,200,703.27
Barracks and quarters, Philippine Islands	348,635.64	750,000.00	375,000.00	600,000.00
Clothing and camp and garrison equipage	4,820,989.86	6,000,000.00	6,000,000.00	4,901,271.67
Construction and repair of hospitals	444,281.20	520,000.00	520,000.00	450,000.00
Quarters for hospital stewards	66,930.91	15,000.00	15,000.00	10,000.00
Shooting galleries and ranges	152,259.95	120,125.00	184,125.00	125,985.01
Maintenance, Army War College	10,320.29	12,700.00	12,700.00	12,700.00
Army storehouses, Corregidor Island, Philippine Islands	58,579.71	.....	.....	.....
Replacing barracks and quarters, Philippine Islands	.....	.....	250,000.00	.....
Medical Department:				
Medical and hospital department	769,280.11	700,000.00	700,000.00	700,000.00
Army Medical Museum and library	18,067.89	15,000.00	15,000.00	15,000.00
Field medical equipment	84.00	.....	.....	.....
Replacing medical supplies destroyed by fire	50,000.00	.....	.....	.....
Bureau of Insular Affairs:				
Care of insane Filipino soldiers	1,500.00	3,000.00	3,000.00	3,000.00
Care of insane soldiers, Porto Rico Regiment of Infantry	.....	.....	720.00	720.00
Engineer Department:				
Engineer depots	29,789.75	30,000.00	30,000.00	30,000.00
Engineer School, Washington, D. C.	24,515.65	25,000.00	25,000.00	25,000.00
Engineer equipment of troops	75,120.73	90,000.00	90,000.00	90,000.00
Civilian assistants to engineer officers	39,778.63	40,000.00	40,000.00	42,000.00
Contingencies, Engineer Department, Philippine Islands	.....	5,000.00	5,000.00	5,000.00
Ordnance Department:				
Ordnance service	318,964.59	325,000.00	325,000.00	337,000.00
Ordnance stores—ammunition	584,524.87	450,000.00	450,000.00	500,000.00
Small-arms target practice	1,041,830.62	1,000,000.00	1,000,000.00	1,000,000.00
Manufacture of arms	1,624,915.41	1,000,000.00	1,000,000.00	750,000.00
Ordnance stores and supplies	985,408.47	800,000.00	800,000.00	800,000.00
National trophy and medals for rifle contests	8,989.41	9,000.00	10,000.00	10,000.00
Fire control in field batteries	37,486.20	.....	.....	.....
Automatic rifles	5,731.09	150,000.00	150,000.00	200,000.00

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
MILITARY ESTABLISHMENT—continued.				
Support of the army—Continued.				
Ordnance Department—Continued.				
Blank ammunition, maneuver camps	.....	.....	$75,000.00	.....
Replacement of ordnance equipment, State of Massachusetts	.....	.....	42,423.21	.....
	96,243,944.06	93,449,067.55	94,358,710.76	91,686,031.73
Less repayment of funds heretofore reported as expended	46,607.22	.....	.....	.....
Total support of the army	96,197,336.84	93,449,067.55	94,358,710.76	91,686,031.73
MILITARY ACADEMY.				
Pay of Military Academy	559,600.91	611,619.87	611,019.87	720,218.07
Current and ordinary expenses	137,190.74	140,798.00	137,098.00	129,414.50
Miscellaneous items and incidental expenses	51,536.31	53,662.50	51,880.00	61,112.50
Buildings and grounds	1,447,141.16	1,070,252.00	1,056,252.00	360,279.50
Total Military Academy	2,195,469.12	1,876,332.37	1,856,249.87	1,271,024.57
MILITIA.				
Encampment and maneuvers, organized militia	640,120.24	1,350,000.00	1,350,000.00	350,000.00
Equipment of coast artillery armories, organized militia	.....	.....	.....	300,000.00
Field artillery for organized militia	24,908.18	.....	.....	.....
Equipment of coast artillery, organized militia	34,600.00	.....	25,000.00	.....
Total militia	699,628.42	1,350,000.00	1,375,000.00	650,000.00
Total military establishment	99,092,434.38	96,675,399.92	97,589,960.63	93,607,056.30
PUBLIC WORKS.				
MILITARY.				
Fortifications and other works of defense.				
Engineer Department:				
Gun and mortar batteries	300,426.19	.....	.....	.....
Fire control at fortifications	281,778.68	200,000.00	200,000.00	100,000.00
Electrical installations at seacoast fortifications	356,716.72	.....	.....	50,000.00
Sites for fortifications and seacoast defenses	267,662.67	.....	.....	.....
Searchlights for harbor defenses	294,541.43	50,000.00	50,000.00	50,000.00
Preservation and repair of fortifications	207,882.40	300,000.00	300,000.00	300,000.00
Repair and protection of defenses of Pensacola, Fla	175,113.21	.....	.....	.....
Repair and protection of defenses of Mobile, Ala	336,000.00	.....	.....	.....

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
PUBLIC WORKS—Continued.				
MILITARY—continued.				
Fortifications and other works of defense—Continued.				
Engineer Department—Continued.				
Plans for fortifications	$4,000.00	$5,000.00	$5,000.00	$5,000.00
Supplies for seacoast defenses	38,815.40	45,000.00	45,000.00	45,000.00
Sea walls and embankments	59,605.00			50,000.00
Sea wall, Fort Travis, Galveston, Tex	83,850.00			
Preservation and repair of torpedo structures	11,565.99	20,000.00	20,000.00	30,000.00
Casemates, galleries, etc., for submarine mines	135,236.74			50,000.00
Fortifications in insular possessions	1,674,777.07	1,605,546.00	994,500.00	1,993,912.00
Sea wall, Sandy Hook, N. J	1,429.60			
Searchlights for New York Harbor	248.06			
Torpedoes for harbor defense	3,237.42			
Torpedo defense of Manila Harbor, P. I	3,830.38			
Concealment of seacoast defenses				5,000.00
Reconstruction and repair of fortifications, Galveston, Tex	22,246.60			
Chief Signal Officer:				
Maintenance, etc., fire-control installations at seacoast defenses	139,840.16	218,278.56	180,000.00	187,310.00
Maintenance, etc., fire-control installations at seacoast defenses, insular possessions			20,000.00	38,700.00
Ordnance Department:				
Armament of fortifications	1,901,809.59	2,000,000.00	1,970,000.00	2,765,000.00
Proving ground, Sandy Hook, N. J		74,900.00	74,900.00	74,900.00
Submarine mines	356,976.78	58,000.00	58,000.00	150,000.00
Fortifications in insular possessions	900,461.63	1,900,000.00	1,474,800.00	963,245.00
Submarine mines in insular possessions	121,745.73			392,775.00
Board of Ordnance and Fortification	42,641.23	50,000.00	25,000.00	25,000.00
Replacing and repairing ordnance property at Gulf forts	882.84			
Quartermaster's Department:				
Torpedo planters and launches for insular possessions	15,718.48			
Chief of Coast Artillery:				
Fire control in insular possessions	205,635.53	200,000.00	200,000.00	
	7,944,675.53	6,726,724.56	5,617,200.00	7,275,842.00
Less repayment of funds heretofore reported as expended	365.26			
Total fortifications and other works of defense	7,944,310.27	6,726,724.56	5,617,200.00	7,275,842.00

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912
PUBLIC WORKS—Continued.				
ARSENALS.				
Ordnance Department:				
Augusta Arsenal, Augusta, Ga	.....	$2,500.00	$2,500.00	.....
Benicia Arsenal, Benicia, Cal	$7,181.34	39,000.00	39,000.00	.....
Frankford Arsenal, Philadelphia, Pa	30,000.00	40,500.00	40,500.00	$55,750.00
Rock Island Arsenal, Rock Island, Ill	19,427.74	7,500.00	7,500.00	30,000.00
Rock Island power plant, Rock Island, Ill	11,593.29	12,500.00	12,500.00	12,500.00
Rock Island bridge, Rock Island, Ill	18,000.00	18,000.00	18,000.00	18,000.00
Springfield Arsenal, Springfield, Mass	10,400.00	.....	.....	18,300.00
Ordnance Depot, Manila, P. I	12,648.04	.....	.....	.....
Picatinny Arsenal, Dover, N. J	127,250.00	32,500.00	25,000.00	20,000.00
Proving ground, Sandy Hook, N. J.	100,540.53	34,500.00	10,500.00	25,000.00
Watertown Arsenal, Watertown, Mass	38,551.98	71,000.00	68,700.00	27,300.00
Testing machines	14,621.14	15,000.00	15,000.00	15,000.00
Watervliet Arsenal, West Troy, N. Y	.....	11,400.00	11,400.00	30,000.00
Repairs of arsenals	300,612.69	290,000.00	290,000.00	290,000.00
Repairs to Rock Island bridge, Rock Island, Ill	60,000.00	.....	.....	.....
	750,826.75	574,400.00	540,600.00	541,850.00
Less repayment of funds heretofore reported as expended	1,443.48	.....	.....	.....
Total arsenals	749,383.27	574,400.00	540,600.00	541,850.00
MILITARY POSTS AND MISCELLANEOUS.				
Quartermaster's Department:				
Military posts	943,794.26	150,000.00	150,000.00	55,000.00
Sewerage system, Fort Monroe, Va.	11,280.73	12,260.82	10,900.82	10,820.82
Seacoast defenses, Philippine Islands and Hawaii	272,713.29	605,000.00	375,000.00	250,000.00
Army supply depot, Fort Mason, Cal	279,496.89	350,000.00	.....	200,000.00
Cavalry post, Territory of Hawaii	.....	200,000.00	.....	175,000.00
Protection of water supply, Fort Meade, S. Dak	.....	.....	.....	17,200.00
Fort D. A. Russell, Wyo., target and maneuver reservation	.....	.....	.....	50,000.00
Breakwaters, wharves, etc., Fort Mills, P. I	.....	.....	.....	25,000.00
Keithley-Overton railroad, P. I	.....	.....	.....	50,000.00
Presidio Military Reservation, San Francisco, Cal	7,500.00	7,500.00	7,500.00	.....
Military Prison, Fort Leavenworth, Kans	165,415.22	183,000.00	183,000.00	.....

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
PUBLIC WORKS—Continued.				
MILITARY POSTS AND MISCELLANEOUS—continued.				
Quartermaster's Department—Cont'd.				
Military Prison, San Francisco, Cal.	$100,000.00			
Target range, Sparta, Wis.	54,873.90			
Target range, Fort Oglethorpe, Ga.	14,815.67			
Water supply, Fort Meade, S. Dak.	45,135.45			
Military Camp, Pine Plains, N. Y.	75,000.00			
Cold storage and power plant, Fort Bayard, N. Mex.	18,213.68			
Quarters for officers and nurses, Fort Bayard, N. Mex.	94,908.68			
Additional land, Fort Benjamin Harrison, Ind.	85.20			
Military post, Waikiki, Honolulu, Hawaii	49,283.59			
Barracks and quarters, seacoast defenses	1,854,150.65	$400,000.00	$400,000.00	
Enlargement of Camp Keithley Reservation, P. I.		12,000.00		
Storehouses, Manila, P. I.		500,000.00		
Rifle range, Nebraska			25,000.00	
Road from Harrisonville to Fort Mott and National Cemetery at Finns Point, N. J.			10,000.00	
Engineer Department:				
Fort Riley Military Reservation, Kans.	13,928.65			
Fort Crockett Reservation, Galveston, Tex.	32,998.50			
Enlargement of Governors Island, N. Y.	17,000.00			
Sea wall, Fort Moultrie, S. C.	36,008.00			
	4,086,602.36	2,419,760.82	1,161,400.82	$833,020.82
Less repayment of funds heretofore reported as expended	43,756.65			
Total military posts and miscellaneous	4,042,845.71	2,419,760.82	1,161,400.82	833,020.82
Total public works (military)	12,736,539.25	9,720,885.38	7,319,200.82	8,650,712.82
CIVIL.				
Secretary's office:				
Chickamauga and Chattanooga National Park	82,352.02	43,000.00	43,000.00	60,171.00
Shiloh National Military Park	35,754.07	27,000.00	27,000.00	27,000.00
Gettysburg National Park	73,362.40	63,000.00	63,000.00	55,000.00
Vicksburg National Military Park	117,098.07	150,000.00	150,000.00	94,000.00
Monuments and markers at Gettysburg	453.91			

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
PUBLIC WORKS—Continued.				
CIVIL—continued.				
Engineer Department:				
Improvement of Yellowstone National Park	$40,928.16	$150,000.00	$75,000.00	$75,000.00
Road to Mount Rainier National Park	10,000.00	25,000.00	25,000.00	5,000.00
Improvement of Crater Lake National Park			10,000.00	
Buildings and grounds in and around Washington	295,488.67	418,790.00	241,290.00	299,790.00
Erection of monuments, etc	83,954.40	83,000.00	65,500.00	
River and harbor improvements under the continuing contract system	29,024,362.47	9,194,428.00	8,051,428.00	7,368,077.00
Improving rivers and harbors		19,038,087.00	41,339,113.50	20,864,361.00
Total public works (civil)	29,763,754.17	29,192,255.00	50,090,331.50	28,848,399.00
Total public works under War Department	42,500,293.42	38,913,140.38	57,409,532.32	37,499,111.82
MISCELLANEOUS.				
NATIONAL CEMETERIES.				
Quartermaster's Department:				
National cemeteries	122,323.62	120,000.00	120,000.00	120,000.00
Pay of superintendents of national cemeteries	62,535.33	62,780.00	62,760.00	62,760.00
Headstones for graves of soldiers	77,022.41	75,000.00	75,000.00	75,000.00
Repairing roads to national cemeteries	6,359.62	12,000.00	12,000.00	12,000 00
Burial of indigent soldiers	2,820.00	3,500.00	3,000.00	3,000 00
Antietam battlefield, preservation	4,495.11	4,500.00	4,500.00	4,500.00
Dispostition of remains of officers, soldiers, civilian employees, etc.	22,497.65	65,000.00	65,000.00	65,000.00
Bringing home the remains of officers, soldiers, and civil employees.				
Confederate mound, Oakwood Cemtery, Chicago	250.00	250.00	250.00	250.00
Burial of indigent patients, Army and Navy Hospital, Hot Springs, Ark		400.00	400.00	400.00
Road to national cemetery, Mound City, Ill	25.00		3,000.00	
Monuments or tablets in Cuba and China				1,000.00
National cemetery, Little Rock, Ark	6,969.10			
National cemetery, San Antonio, Tex	6,878.69			
Camp Butler National Cemetery, Riverton, Ill	6,995.35			
National cemetery, Knoxville, Tenn	1,597.91			

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
MISCELLANEOUS—Continued.				
NATIONAL CEMETERIES—continued.				
Quartermaster's Department—Cont'd.				
Marking graves of confederate soldiers and sailors who died in northern prisons	$28,012.02			
Marking graves of soldiers and sailors on Isle St. Michel	615.00			
Lincoln's Gettysburg address in national cemeteries	2,054.66			
Arlington National Cemetery, Virginia	14,889.54			
	366,941.01	$343,430.00	$345,910.00	$343,910.00
Less repayment of funds heretofore reported as expended	730.32			
Total national cemeteries	366,210.69	343,430.00	345,910.00	343,910.00
MISCELLANEOUS OBJECTS.				
Secretary's Office:				
Construction of driveway, War Department branch printing office		1,075.00	1,075.00	
Quartermaster's Department:				
Claims for damages to and loss of private property		10,840.95		
Claims, religious orders, Philippine Islands		80,243.00		
Medical Department:				
Artificial limbs	122,691.28	105,000.00	105,000.00	330,000.00
Appliances for disabled soldiers	1,371.06	2,000.00	2,000.00	2,000.00
Trusses for disabled soldiers	3,830.61	6,000.00	6,000.00	5,000.00
Repairs to Army Medical Museum building				10,000.00
Screening doors, etc., isolating ward, Providence Hospital, Washington, D. C.			500.00	
Engineer Department:				
Survey of northern and northwestern lakes	127,597.64	125,000.00	125,000.00	125,000.00
Maps, War Department	5,445.53	5,000.00	5,000.00	5,000.00
Expenses, California Débris Commission	12,256.10	15,000.00	15,000.00	15,000.00
Prevention of deposits, harbor of New York	85,235.97	100,260.00	100,260.00	85,260.00
International Waterways Commission	20,529.90	20,000.00	20,000.00	20,000.00
Bridge across Mississippi River at Fort Snelling, Minn	15,320.22	1,200.00	1,200.00	
Raising U. S. S. Maine, etc., harbor of Habana, Cuba			300,000.00	
Ordnance Department:				
Reimbursement to Albert Moebius and Jacob Seizer		18.75		
Chief Signal Officer:				
Reimbursement, Western Union Telegraph Co		755.28		

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General object.	Expenditures for the fiscal year ended June 30, 1910.	Estimates for the fiscal year ending June 30, 1911.	Appropriations for the fiscal year ending June 30, 1911.	Estimates for the fiscal year ending June 30, 1912.
MISCELLANEOUS—Continued.				
MISCELLANEOUS OBJECTS—continued.				
Board of Managers, National Home for Disabled Volunteer Soldiers:				
National Home for Disabled Volteer Soldiers	$4,248,394.75	$4,309,250.00	$4,201,800.00	$4,383,752.00
State or Territorial Homes for disabled soldiers and sailors	1,233,533.30	1,150,000.00	1,150,000.00	1,200,000.00
Miscellaneous items			66,633.67	
Total miscellaneous objects	5,876,206.36	5,931,642.98	6,099,468.67	6,181,012.00
Total miscellaneous	6,242,417.05	6,275,072.98	6,445,378.67	6,524,922.00
RECAPITULATION.				
Civil establishment	1,977,466.00	2,029,288.00	2,026,248.00	2,043,188.00
Military establishment (including support of the army, Military Academy, and militia)	99,092,434.38	96,675,399.92	97,589,960.63	93,607,056.30
Public works:				
Military	12,736,539.25	9,720,885.38	7,319,200.82	8,650,712.82
Civil	29,763,754.17	29,192,255.00	50,090,331.50	28,848,369.00
Miscellaneous	6,242,417.05	6,275,072.98	6,445,378.67	6,524,922.00
Grand total	149,812,610.85	143,892,901.28	163,471,119.62	139,674,278.12

RECAPITULATION.

General object.	Increase of estimates for 1912, as compared with estimates for 1911.	Decrease of estimates for 1912, as compared with estimates for 1911.	Increase of estimates for 1912, as compared with appropriations for 1911.	Decrease of estimates for 1912, as compared with appropriations for 1911.
Civil establishment	$13,900.00		$16,940.00	
Military establishment (including support of the army, Military Academy, and militia)		$3,068,343.62		$3,982,904.33
Public Works:				
Military (fortifications, arsenals, military posts, etc.)		1,070,172.56	1,331,512.00	
Civil (military parks, buildings and grounds in and around Washington, and river and harbor improvements)		343,856.00		21,241,932.50
Miscellaneous	249,849.02		79,543.33	
Grand total	263,749.02	4,482,372.18	1,427,995.33	25,224,836.83
Less increase		263,749.02		
Net decrease of estimates for 1912, as compared with estimates for 1911		4,218,623.16		
Less increase				1,427,995.33
Net decrease of estimates for 1912, as compared with appropriations for 1911				23,796,841.50

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The estimates submitted in December, 1909, for the support of the military establishment proper during the fiscal year 1911, involving chiefly things consumed during the year, were $7,952,004.75 less than the appropriations and $10,686,480.96 less than the estimates for the fiscal year 1910. The estimates submitted this year for the support of the military establishment proper during the fiscal year 1912, involving chiefly things consumed during the year, are $3,257,904.33 less than the appropriations for the current fiscal year—1911. The decrease is due to the fact that the Department is asking for decreased amounts for incidental expenses, military post exchanges, transportation of the army and its supplies, roads, walks, wharves and drainage, water and sewers at military posts, clothing and camp and garrison equipage, construction and repair of hospitals, quarters for hospital stewards, shooting galleries and ranges, manufacture of arms, current and ordinary expenses of the Military Academy, and buildings and grounds, Military Academy.

While the Department, on the one hand, is decreasing its estimates for objects, very many of which are consumed, deteriorate or disappear in use during the year, on the other hand Congress is being asked this year for slightly increased appropriations for improvements and plant of a more or less permanent character coming under the head of "Fortifications and other works of defense," which include such objects as electrical installations at seacoast fortifications, sea walls and embankments, preservation and repair of torpedo structures, casemates, galleries, etc., for submarine mines, fortifications in insular possessions, concealment of seacoast defenses, maintenance, etc., of fire-control installations at seacoast defenses in the United States and insular possessions, armament of fortifications, submarine mines, and submarine mines in insular possessions, aggregating in round numbers $1,600,000. The increase in the estimates for the above-named objects is due mainly to the fact that last year's estimates for the same objects in the United States were based upon the actual amount that would be required to maintain existing works, while this year's estimates are contemplated to cover not only the maintenance and preservation of existing works in the United States and insular possessions, but in addition thereto the purchase and installation of such accessories as are deemed absolutely essential to the fortification projects now being

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carried on in the Philippine Islands. This increase in estimates for items of a permanent or semipermanent character is offset by a decrease of $330,000 for various other items for works of a permanent character, such as military posts, seacoast defenses in the Philippine Islands and Hawaii, barracks and quarters for seacoast defenses in the United States, and the military prison at Fort Leavenworth, Kans. The net increase in the estimates for these permanent or semipermanent works is, therefore, in round numbers, $1,300,000.

Attention is invited to the fact that the reduction in the estimates submitted for the fiscal year 1911, as well as that in the estimates recently submitted for the fiscal year 1912, is a temporary measure of economy made necessary on account of the demand for a reduction of appropriations. In its estimates for both years the department reduced the amounts requested for the maintenance of the military establishment to the lowest point consistent with good administration.

The foregoing tabulated statement is intended to show the expenditures from the appropriations which are made by Congress in pursuance of the annual estimates submitted by the War Department. It does not, therefore, include expenditures from the following classes of appropriations made by Congress without estimates from the War Department:

1. Indefinite annual appropriations, which are appropriations for such amounts, not definitely stated, as may be necessary to accomplish certain specified objects.

2. Permanent annual appropriations, which, by the terms of the original act of appropriation, become available each year without additional legislation.

3. Appropriations for war claims and relief acts, which are made by Congress upon estimates submitted by the Secretary of the Treasury, based upon amounts found due after adjudication of these claims by the Court of Claims, United States courts, and the accounting officers of the Treasury.

Expenditures from appropriations of these three classes are included in the statements annexed hereto as Appendixes A, B, C, and D, which are complete and detailed statements covering the transactions of the department during the fiscal year ended June 30, 1910, from appropriations made for the service of the fiscal years

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1910, 1909, 1908, and 1907 and prior years, showing all balances from appropriations, the amounts appropriated under each title of appropriation, the amounts drawn from the Treasury, and the unexpended balances of each appropriation remaining in the Treasury June 30, 1910, subject to requisition. These statements show also the amounts covered into the surplus fund of the Treasury from all appropriations under the control of the War Department which are no longer available or required for expenditure.

THE PHILIPPINES.

By your direction I visited the Philippine Islands during the past summer, having left San Francisco June 28 and returning to Washington on the 8th of November. Gen. Clarence R. Edwards, chief of the Bureau of Insular Affairs, accompanied me. Five weeks were spent in the islands, during which we visited the provinces of Rizal, Cavite, Zambales, Mountain Province, Pangasinan, Tarlac, Pampanga, Tayabas, Albay, Samar, Cebu, Moro Province, Palawan, Iloilo, and Capiz. I saw most of the military posts and much of the educational, agricultural, and industrial development that is going on in the islands.

The knowledge resulting from personal contact and observation furnishes the basis for a more perfect understanding and a better handling of the problems connected with Philippine affairs which are constantly coming before the department for solution.

The places visited and the matters investigated by me during this visit, together with a statement of some of the impressions and opinions which have resulted from my observations and study on this visit, are fully set out in the special report which I made to you under date of November 23, 1910.

The report of the Philippine Commission, which has not yet been received, will be transmitted hereafter.

In the last annual report of the department, referring to the insular government's fear of reduced revenues as a result of the new trade relations between the United States and the Philippines, it was stated:

> The department anticipates that the resulting decrease of custom revenues will not be great and will be satisfactorily met by an increase of internal revenues.

The result of the first year's application of the new tariff more than justifies this prediction. There was a slight decrease of customs revenues, but the increase in internal revenues was something more than twice the amount of this decrease.

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PORTO RICO.

In consequence of the executive order of July 15, 1909, giving the War Department jurisdiction of all matters pertaining to the government of Porto Rico, and pursuant to your general directions, I went to Porto Rico, reaching there the morning of December 26, 1909. Brig. Gen. Clarence R. Edwards, Chief of the Insular Bureau, and Lieut. Col. Jefferson R. Kean, of the Medical Department, accompanied me.

The purpose of my visit was to study the state of the insular administration, and the political, economic, and hygienic conditions of the island and to report the result of my visit, with impressions of such changes in the organic law as in my judgment were required.

I remained in the island until January 3, 1910, spending six days in San Juan and two days in visiting other municipalities of the island. The result of my visit was embodied in a special report to you, dated January 20, 1910, which was published as House Document 615, Sixty-first Congress, second session. The bill which I recommended has passed the House of Representatives with amendments and is now awaiting the action of the Senate.

Health conditions.

One feature of this bill which I particularly hope that Congress may see fit to enact is that which relates to the establishment in Porto Rico of an efficient central health department. We must not let the progress made in Porto Rico since it has become an American possession make us forget that there yet remains a great deal to be done.

The Porto Rican, when Porto Rico was annexed to the United States, was in the main a very sick man, and the first requirement in such case is that the man should be made well. The condition of the Porto Rican peasant—that is, more than 60 per cent of the people of Porto Rico—was well set forth in an article published by Dr. Cayetano Coll y Toste, a distinguished Porto Rican, in December, 1897, in which he says:

> Only the peasant, the son of our fields, one of the most unfortunate beings of the earth, with pallid face, bare feet, fleshless body, ragged clothing, and feverish glance, walks indifferent with the darkness of ignorance in his eyes, dreaming of the fighting cock, the coup at monte, or the premium in the provincial lottery.

We found smallpox endemic in the island, and by a complete vaccination of the people under military government this evil was eradicated, so that in his annual report for 1907 the governor of Porto

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Rico reported that there had been no deaths from smallpox in the Island of Porto Rico since the establishment of civil government in that island.

Later it was discovered that the type of man graphically described by Doctor Coll was not, as he had supposed, entirely the result of unfortunate and vicious surroundings, but was a man suffering with a specific disease which could readily be eradicated—that is, the man was afflicted with uniciniarisis. Since this discovery steady progress has been made in combating this disease, but the progress has been retarded by the lack of funds and at times by the lack of agreement between the authorities in the island. It is believed with the central board of health provided for in the pending bill and with the assistance of the appropriation recommended by me in the special report referred to that this work can be carried to a successful issue.

Health conditions in the island during the year have been, on the whole, satisfactory. The number of deaths per thousand was 22.10, a decrease from 30 per thousand during the last ten years of Spanish rule and from 40 per thousand in the year following the disastrous hurricane of 1899.

Agriculture and commerce.

The progress in agriculture and commerce is well indicated by the exports from the island during the year, being an increase of 46½ per cent over the average for the five preceding years.

Education.

The number of pupils enrolled in the public schools in the year was 121,453, an increase of 15½ per cent over the preceding year. The total enrollment in 1899 was 25,789. Special effort has been made to make the education in the schools practical.

I transmit a report of the governor of Porto Rico for the fiscal year ending June 30, 1910, accompanied by the report of the various heads of departments of the insular government. These reports, taken with the report to which I have heretofore referred, give a very complete résumé of the conditions in that island and occurrences of the past year. It may be made of record here that these conditions have been in the main highly satisfactory, there being material progress in every direction of activity.

George Cabot Ward resigned as secretary of Porto Rico on April 1, 1910. His successor has not yet been appointed, the duties of the office being at present performed by the assistant secretary.

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John A. Wilson was appointed on January 17, 1910, commissioner of the interior of Porto Rico, as successor to Laurence H. Grahame, whose term had expired.

H. M. Hoyt, 2d, resigned as attorney-general of Porto Rico on May 12, 1910, and the vacancy was filled by the appointment of Foster V. Brown.

Alphonso P. Sawyer was appointed auditor of Porto Rico August 25, 1909, vice George Cabot Ward, who was appointed secretary of Porto Rico. Mr. Sawyer has recently resigned to take effect December 1, 1910. His successor has not yet been designated.

THE PANAMA CANAL.

The work on the Panama Canal for the fiscal year 1910 is fully described in the Annual Report of the Isthmian Canal Commission, which is being submitted to you in the usual form as a separate document for transmission to Congress. It gives complete details of the work in all its departments and shows that the usual steady and satisfactory progress has been accomplished during the year. The Hon. Jo. C. S. Blackburn resigned from the commission on December 4, 1909, and his place was filled by the appointment of Mr. Maurice H. Thatcher on April 12, 1910, and he has been assigned to duty as head of the department of civil administration. Except for minor changes the organization of the commission and its different departments and divisions has remained practically the same as at the beginning of the fiscal year. The information contained in this report, supplemented by the personal knowledge gained by you during your recent visit to the Isthmus, brings the status of the work down to date. It remains for me briefly to record here the salient features of the progress made during the year.

Excavation.

The total excavation during the fiscal year amounted to 31,858,122 cubic yards, against 37,966,926 cubic yards excavated during the preceding year. Of the amount excavated during the last year, 19,903,480 cubic yards were taken out by steam shovels and 11,954,642 cubic yards by dredges, against 22,670,955 cubic yards by steam shovels and 15,295,971 cubic yards by dredges, respectively, in the preceding fiscal year. The average total monthly excavation of all kinds during the past fiscal year was 2,654,843 cubic yards, as compared with 3,183,910 cubic yards in 1909 and 2,331,615 cubic yards in 1908. As was anticipated, the

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maximum rate of excavation was accomplished during the fiscal year 1909, and the reduction in quantity of material excavated is accounted for by the completion of parts of the work, as well as the decrease of available working space in the Culebra cut as the depth increases. Moreover, some parts of the plant, such as steam shovels and dredges, which have heretofore been engaged solely on excavation are now used on other work, such as quarry work and work in connection with the Gatun dam, etc. At the close of the fiscal year 71,774,143 cubic yards remained to be taken out in order to complete the canal. This includes the addition of 7,871,172 cubic yards to the total amount to be excavated, this being based on a new estimate made during the year to allow for slides in Culebra cut, for silting in the Chagres section, for lowering the bottom of the canal from 40 to 39 feet above sea level in the Chagres section, and for excavating a ship basin north of Pedro Miguel locks, these factors not having been included in the estimate of the total excavation required made in December, 1908.

Although the total quantity to be excavated is very materially increased in the new estimate, yet it is believed that neither the ultimate cost for the work, as estimated by the chairman and chief engineer of the commission and referred to in my last annual report, nor the ultimate time of completion will be affected by the increase, owing to the fact that since these estimates were made the cost of excavation has decreased and the rate of progress in excavation has been greater than was anticipated.

On November 1, 1910, there remained 61,237,845 cubic yards to be excavated, and the following statement shows what proportion this bears to the total excavation necessary for the canal:

	Cubic yards.	
Estimated French excavation usable in present plan		29,908,000
Estimated amount of excavation required May 4, 1904		182,537,766
Total amount of excavation to complete canal under present plan		212,445,766
Amount taken out by French prior to May 4, 1904	29,908,000	
Amount taken out by Americans to November 1, 1910	121,299,921	
		151,207,921
Amount remaining to be excavated November 1, 1910		61,237,845

This table indicates that the excavation is practically 71 per cent completed.

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Dams and locks.

Very satisfactory progress is being made in the construction of the Gatun dam, a survey made at the end of September, 1910, showing that the surface of the hydraulic fill in the western section was at 27.3 feet above sea level, and the surface of the fill in the east section was at 56 feet above sea level. On November 5, 1910, a total of 103,535 cubic yards of concrete had been laid in the Gatun spillway.

On November 5, 1910, the concrete work in Gatun locks was about 41 per cent completed, 861,849 cubic yards, out of a total of 2,085,000 cubic yards, having been placed to this date.

The laying of concrete at Pedro Miguel lock has also progressed satisfactorily, 384,292 cubic yards having been laid up to November 5, out of a total of 837,400, or approximately 46 per cent.

At Miraflores locks the placing of concrete was begun on June 1, 1910, and on November 5, 1910, there had been laid 54,871 cubic yards. As the total estimated amount is 1,430,200 cubic yards, this work is about 3.8 per cent completed.

Health conditions and sanitation.

The health conditions on the Isthmus are reported by the chief sanitary officer as again showing improvement over those of the preceding year. No cases of plague or yellow fever originated on the Isthmus, although there was one death from yellow fever at Ancon Hospital on January 24, 1910, in the person of a young Englishman who passed quarantine at Colon January 6, and was taken ill on January 8, his case being diagnosed as yellow fever on January 22. Successful precautions were taken to prevent the spread of the disease.

Street improvements in Panama, authorized under the congressional appropriation of $800,000 for sanitary improvements in the cities of Panama and Colon, are approaching completion, and considerable work has also been done at Colon, the improvements contemplated at this point consisting of filling low sections and additions to the drainage system.

The tremendous and important results in sanitation that have been accomplished by the Isthmian Canal Commission under the direction of its chief sanitary officer, Col. W. C. Gorgas, of the Medical Corps of the Army, are graphically stated in the following extract from a recent magazine article by Dr. William Osler, formerly of Johns

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Hopkins University, now regius professor of medicine in Oxford University:

Read the story of yellow fever in Havana and in Brazil if you wish to get an idea of the powers of experimental medicine; there is nothing to match it in the history of human achievement. Before our eyes to-day the most striking experiment ever made in sanitation is in progress. The digging of the Panama Canal was acknowledged to be a question of the health of the workers. For four centuries the Isthmus had been a white man's grave, and at one time during the French control of the canal the mortality reached the appalling figures of 170 per thousand. Even under the most favorable circumstances it was extraordinarily high. Month by month I get the reports, which form by far the most interesting sanitary reading of the present day. Of more than 54,000 employees (about 13,000 of whom are white) the death rate per thousand for the month of March was 8.91, a lower percentage, I believe, than in any city in the United Kingdom, and very much lower than in any city in the United States. It has been brought about in great part by researches into the life history of the parasite which produces malaria, and by the effective measures taken for its destruction. Here again is a chapter in human achievement for which it would be hard to find a parallel. But let us not forget that these are but illustrations of widespread possibilities of organization on modern lines.

The death rate given above of 8.91 was the annual average per thousand of deaths among employees for the month of February instead of March, as stated, and was for all causes, external causes as well as disease. This rate was published in the March report, the figures relating to the number of employees being compiled from the pay rolls of the preceding month. The March report also shows that the total number of employees on the pay rolls during the month of February was 51,119, instead of "more than 54,000." In the same report the death rate per thousand for the entire population—147,962, including employees and the civil population—of the Canal Zone and the cities of Panama and Colon is given as 18.33. This figure compares favorably with the death rate of some cities of the United States of over 100,000 inhabitants.

From the beginning of the fiscal year there was a steady increase in the force of skilled and unskilled labor, until a maximum—38,676—was reached on March 30, 1910, including those employed by the Panama Railroad Company and on the railroad relocation. Since that time there has been a slight decrease, but the total effective force on June 30, 1910, was 35,578, as compared with 33,493 on June 30, 1909.

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Field work on the survey of the land area of the Canal Zone, as it will be after the completion of the canal, has been begun under the special appropriation made by Congress at its last session for this purpose.

Panama Railroad Company.

During the past fiscal year the operations of the Panama Railroad Company have been carried on under the "open-door" policy, as in past years since the company came under the control of the Government. The company's annual report, which will be submitted to you for transmission to Congress in due course, shows in great detail the operations of the company, which, on the whole, were satisfactory. After meeting the total cost of operation, together with fixed charges, aggregating $487,584.11, and charges for depreciation of rolling stock, floating equipment, and commissary plant, amounting to $544,887.12, the net earnings during the fiscal year amounted to $1,254,777.80, the greater part of which amount was applied to a reduction of the company's indebtedness to the United States on account of sums previously advanced under the authority of Congress.

New steamship line.

Until October 1 of this year the only American line connecting with the Panama Railroad on the Pacific side was the Pacific Mail Steamship Line. Service by this line to San Francisco had been very unsatisfactory, and although direct service without stops at foreign ports had been repeatedly requested, no action was taken.

In October, 1910, an additional American line, known as The California and Atlantic Steamship Company, was started by Messrs. Bates and Chesebrough from San Francisco, giving direct service to Panama, stopping only at San Pedro, Cal.

Immediately after the institution of this new line the Pacific Mail Steamship Line also started a direct service with steamers sailing every fifteen days, this being an addition to their former local service.

Death of President Obaldia.

Señor José Domingo de Obaldia, second President of the Republic of Panama, died on March 1, 1910.

Under the provisions of the Panaman Constitution, Dr. Carlos A. Mendoza, Second Designado, assumed the executive power as Acting President, the First Designado, the late José Augustin Arango, having died some time

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before President Obaldia. Dr. Mendoza's term expired October 1, 1910. In the meantime Dr. Pablo Arosemena had been elected First Designado and Mr. Frederico Boyd Second Designado. Mr. Boyd assumed the executive power on October 1, in the temporary absence of Dr. Arosemena, who was formally inaugurated as Acting President on October 5.

RETIREMENT OF CIVIL-SERVICE EMPLOYEES.

I renew the recommendation made in my annual report last year that some provision be made for the retirement on annuities of employees who have become superannuated in the service, thus following the practice which many railroads and other large business enterprises have found it advisable to adopt.

In his annual report for 1910 the Chief of Engineers, in acknowledging the "most loyal and efficient support and assistance in the transaction of the duties devolving upon him" received from the civilian employees of his office, states:

> I take pleasure in joining my predecessor in the hope that some provision will speedily be made for their financial relief when they become superannuated in the public service, to which many of them have devoted the best years of their lives—the salaries of the office clerks as fixed by law, and practically unchanged for fifty years, being too small, excepting in rare instances, to permit such accumulation as will provide for their support when they become incapacitated for active duty.

The following extracts are taken from the annual reports of other chiefs of bureaus of the War Department and of commanding generals of departments who have made similar recommendations:

From report of the Paymaster-General:

> The present movement for the retirement of clerks with sufficient compensation after they have reached an age which incapacitates them for the performance of their full duties is certainly worthy of favorable consideration, and I hope that legislation will shortly be enacted which will establish a retired-pay list for government clerks.

From report of the Inspector-General:

> In my annual reports for several years past I have recommended the enactment of legislation that will provide a system for the retirement of the faithful employees in the classified service who become superannuated. I renew this recommendation.

From report of the Quartermaster-General:

> The need of some provision for superannuated clerks is more pressing than ever before in the history of the department. During the year it has again become necessary to demote a number of deserving clerks, for causes which can be stated only as worn out in service. For the protection of the Government's interests it will be nec-

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essary to continue this action and even to take the final step of discharging those whose capacity for service has reached the point where their retention can be no longer justified, and they will, unless some provision is made for them by legislative action, have to be set adrift under conditions which preclude every opportunity for obtaining remunerative employment elsewhere.

From report of the Commissary-General:

I also earnestly recommend the passage of a measure providing for the retirement, on some equitable plan, of old and faithful superannuated employees of the Government, for the reason that it would result in marked improvement in the service:

First, by attracting a better class of employees, a large percentage of whom by reason of the provision for old age would remain in and make the service their career, becoming expert in their particular line of work, to the distinct advantage of the Government; and there never was a time when the highest qualification and equipment were more needed in the service than at present;

Second, by the added incentive held out to each employee to do his best in order to obtain promotion to higher grades, and later profiting by increased retired pay.

Third, by the periodic and automatic elimination of those whose efficiency has been impaired by age or infirmity and the introduction of younger and more vigorous men, thereby maintaining an active and efficient working force and making it possible in time to transact the business with fewer employees.

Fourth, aside from all sentimental consideration, it is believed that the service would be greatly improved if it should be known to all who enter it that a provision is made for the support of themselves and their families when old age comes upon them. It would be an inducement for them not only to remain in the service but to deport themselves in such a manner as to do nothing to forfeit so valuable a provision.

Fifth, because in cases of protracted illness employees worry over the possibility of being discharged, and the anxiety tends to retard their recovery and return, whereas if they were free from this apprehension and felt secure of being provided for in the event of becoming incapacitated their strength and courage would be sustained and recovery assisted rather than impeded.

Sixth, because railroads, corporations, and commercial houses recognize and reward long and faithful service by retirement, and regard it as a good business investment; and other governments also make some provision for their aged and worn-out civil servants.

From report of the Surgeon-General:

Some discussion of the cognate question of the superannuation of civil employees may also be deemed pertinent. This office has perhaps been fortunate in having suffered little burden from its elderly and aged employees. The majority of the clerks of advanced years came into this office in the full tide of youth shortly after the close of the civil war, nearly all of them either directly or indirectly from the army. Their military experience and familiarity with army customs, methods, and principles have lent the greatest value to their work. They have grown old in the service; and age has in some instances dimmed the keenness of their faculties or diminished the

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vigor of their industry. Most of them are of the highest usefulness, and by reason of their natural gifts, experience, and continued efficiency are kept in the positions of greatest trust and responsibility. Their absence record compares favorably with that of their younger colleagues, while their capacity, as a rule, remains unimpaired. In some cases it has been found necessary, in their own interest as well as in that of the service, to assign them to less onerous tasks with which their failing powers were better able to cope; and this has been accompanied by an appropriate reduction of grade and pay, a procedure which is distressing alike to those who must cause such reductions and to those who suffer by them. But these veterans, even at the reduced pay, still were able to earn a livelihood. I am bound to admit, however, that one or two instances have come to my notice where men enfeebled by disease and the infirmities of age have after long service been unable to continue the performance of duty of any character, and under the law have, after a brief indulgence of leave, found themselves dropped from the rolls. Few men in the lower grades of public service in Washington, having due regard to the great cost of the comforts of life, of the decent maintenance of their families, and of the education of their children, are able to make adequate provision for an unproductive old age. When, therefore, such disability comes to these old men, as it will to some, it appears a harsh reward for a lifetime's service to throw them out upon the cold sympathies of the world. Suitable provision for their last years is a fair call of humanity. At the same time it would serve a valuable public purpose as well, for it would attract to and retain in the service of the Government a class of employees of exceptional capacity who, without such inducement, now turn to a private career, because of the greater opportunities there found for the accumulation of a reasonable competency for their old age.

From report of Brig. Gen. F. A. Smith, commanding Department of the Missouri:

* * * It is also recommended that some measures be taken to provide a pension or a system of retirement for clerks and employees who have become superannuated and who have devoted the greater part of their lives to the government service.

From report of Brig. Gen. C. L. Hodges, commanding Department of Dakota:

* * * I also recommend that steps be taken to have such legislation enacted as will provide a system of retirement for all clerks and employees of the War Department who have become superannuated in the government service.

In this connection I invite attention to the following extract from a statement made some years ago by Maj. Gen. F. C. Ainsworth, The Adjutant-General of the Army, before the Committee on Reform in the Civil Service of the House of Representatives:

A retired list or a pension list is the natural outgrowth of a system which assures comparative permanence of tenure of position to persons employed in either the military or civil service of any government. Although the United States has made provision for the retirement of its military officers and enlisted men and for the pen-

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sioning of officers and men not entitled to retirement, there is no probability that it will follow the example of any foreign government, at least in the near future, by establishing a civil pension list, notwithstanding the fact that many good reasons for the establishment of such a list can be adduced by those who are in favor of it.

A retired list for the army was first established by the act approved August 3, 1861, "providing for the better organization of the military establishment." Prior to that date officers held their positions by a tenure which differed in no respect from that by which employees in the civil service hold theirs to-day. No officer had a life tenure of his commission, and every officer was subject to dismissal at any moment by the appointing power. When officers became disabled by reason of age, disease, or wounds, they had no legal right whatever to be retained in service, and if they escaped dismissal they did so by reason of the compassion and forbearance of the Executive.

That is precisely the situation in the civil service to-day, and the causes which led to the establishment of a retired list for the army in 1861 are almost all operative, to a greater or less extent, in the civil service at the present time. It is true that in the course of many years prior to the creation of the retired list it became a sort of unwritten law that officers of the army, unless dismissed for cause, should be retained in service until they died, and it is equally true that existing conditions tend strongly toward the formation of such a law in the civil service. Entrance to the civil service being guarded so that appointments therein can not be made in furtherance of personal or political interests, there is no pressure from the outside to create vacancies in the service, and superannuated or disabled employees are no longer crowded out merely to make room for political or personal favorites.

The same conditions, only carried to a greater extent, existed in the old army, and I have no doubt that in the course of years, if no change is brought about by legislation, the situation of the personnel of the civil service will be substantially what that of officers of the army was at the time of the creation of the retired list, and that such a list, or a pension list, will be provided for the civil service.

At any rate, I am firm in the belief that such a list is a natural and logical outgrowth of the existing system. The antipathy to a civil pension or retired list is no greater at the present time than that which was once manifested, and, indeed, is now manifested in some quarters, against a military retired list.

But the world moves, and there is a constantly increasing disposition in all progressive countries to make provision for the care and maintenance of the worn-out or disabled servants, not only of the State, but of private corporations and of business establishments as well. One must be blind to the progress of events the world over, and in the United States especially, who will venture to predict that a civil pension or retired list in this country is not a possibility, or even a probability, of the not distant future.

And why should any of us shudder at the mere mention of a civil pension or retired list and speak of it with bated breath as a thing of horror and a possible source of unspeakable evil? Can any intelligent man deny that a retired list, which has been of such great benefit to the military and naval service, will not be of equal benefit to the civil service? I am free to confess that I am convinced that, leaving all sentimental considerations out of the account, it is decidedly in the interest of the Gov-

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ernment to make provision for at least its worn-out civil servants by establishing a retired list for them, thus placing them on substantially the same footing as that of superannuated officers and enlisted men of the army and navy.

The commission of the army or navy officer is a valuable life estate, the continued enjoyment of which depends upon his faithful and efficient discharge of his duties and of his maintenance of the character of an honorable man. Thus he is under the very heaviest bonds for good behavior, and motives of self-interest alone are sufficient to keep him up to a high moral and professional level. Free from anxiety as to his future, he devotes his life to the career upon which he has embarked and manifests no disposition, as he feels no necessity, to divert his energies into other channels or to seek in other occupations a more secure livelihood.

But the civil employee enters the service with no such assurance as to his future, and the Government has no such guaranty of good behavior and devotion to duty on his part. Dismissal has no terrors for him beyond that of the present loss of his salary, a loss which he knows he will suffer in future, at a time when the avenues to all other employment will be barred to him, no matter how long or how faithfully he may have labored in the public service. He knows that upon himself alone rests the responsibility of providing a support for himself and family in his declining years, and consequently he is always on the alert for private employment which will enable him to abandon the public service with a prospect of bettering his future condition.

Indeed, I believe that comparatively few of the young men now entering the civil service do so with the definite intention of remaining therein permanently, but that most of them accept their appointments with the more or less clearly defined purpose of relinquishing them as soon as they shall have been admitted to the practice of a profession or shall have secured satisfactory employment in private business. Of course, this intention is not always realized; but the fact remains that many of the best men abandon the service after a few years for the purpose of engaging in private business which offers them better prospects for the future. This almost never occurs among officers of the army or navy, and it would occur very infrequently in the civil service if the inducements to remain therein were anywhere nearly as great as that which is offered by the military and naval services.

It goes without saying that the Government ought to have the very best men in all branches of its service; but it is difficult to get such men in the civil service, and more difficult still to keep them, because the ability which makes them valuable in the public service is sure of a much more generous reward in private employment. But the Government has no difficulty in keeping its army and navy filled with officers of the very highest intellectual and moral worth, men with qualifications that are constantly in demand in civil life at rates of compensation far greater than those offered by the Government. And the same statement may be made with regard to the judiciary.

Why is it that those services can obtain and keep these men, men who would adorn and dignify their respective professions in any country on earth, while almost all other branches of the public service must be content with a personnel which, whatever else may be said of it, certainly can not be said to be of that high character? It is almost wholly due to the assurance, given by the retirement law, that an officer

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shall not lack the means of comfortably maintaining himself and family after disability or advancing age shall have incapacitated him for earning a support by his own efforts. The employee in the permanent branches of the civil service holds his position by a tenure that is not much less secure than that of the military or naval officer up to the time of his becoming disabled or superannuated, so that the only material difference between the two in this respect is to be found in the fact that the civil employee is liable to find himself in the hopeless and pitiable situation of being cast adrift without means of support for himself or family whenever he becomes too old or too infirm to work.

With the possibility of some time finding themselves in such a situation continually before their eyes, is it to be wondered at that many men who have the ability to succeed in private life will not enter the civil service, or, having entered it, abandon it whenever an opportunity to do a little better elsewhere presents itself? I am well aware that the opponents of a retired list, military as well as civil, have always alleged that the Government pays salaries so ample that all of its permanent officers and employees can accumulate enough to support them in their old age, or ought to do so, and that consequently a retired list is not only unnecessary, but encourages improvidence and extravagance.

But this allegation, aside from being the reverse of true in the majority of casec, has no bearing upon my present contention, which is that it is for the best interests of the Government itself to maintain a retired list for all of its permanent services, civil as well as military.

Will anyone deny that it is most desirable to bring all branches of the public service up to the high level of the judiciary, the army, and the navy, and does anyone doubt that a very considerable increase in expenditures for the attainment of this end would be an excellent investment? But I think it can be shown that all this can be brought about by a comparatively small increase in expenditure and at a cost that will be far less than the friends, to say nothing of the enemies, of a civil retired list have ever estimated.

While retirement for disability incurred in service and line of duty, regardless of age or length of service, was justly provided for in the army and navy retirement laws, because of the hazardous nature of the duties that officers are often called upon to perform, there does not seem to be equally strong reasons for making such a provision for those engaged in civil employment, except, perhaps, those whose duties are of an extra hazardous nature, such as employees of the Railway Mail Service and some others. For present purposes it may be well enough to disregard altogether the question of retirement for disability and consider only that of retirement for age or long service.

I think the personnel of the service would be very greatly improved if it should be known to all who enter it that they have some sure provision for the support of themselves and their families when old age comes upon them. Such an assurance would be a very great inducement for men to remain in the service and to carry themselves well in it, because, as I said before, whatever might be assured to them in that way would really be an estate, and one which they would take good care not to forfeit.

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ENUMERATION OF REPORTS SUBMITTED.

I submit herewith the report of the Chief of Staff and the report made to him by the Chief of Coast Artillery; the reports of division and department commanders; the reports of the heads of the bureaus of the War Department; the reports of the commissioners of the four national military parks; of the superintendent of the Military Academy, and of the governor of Porto Rico.

The report of the Philippine Commission will be transmitted as soon as received.

J. M. DICKINSON,
Secretary of War.

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APPENDIX A.

Statement of the appropriation of the preceding fiscal year (1910) for the Department of War, as required by the act of May 1, 1820 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1910, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
CIVIL ESTABLISHMENT.							
Secretary's office:							
Salaries—							
Office of Secretary of War		$146,910.00		$146,910.00	$146,010.00		$900.00
Adjutant-General's office		781,950.00		781,950.00	764,200.00		17,750.00
Office of Inspector-General		12,560.00		12,560.00	12,280.00		280.00
Office of Judge-Advocate-General		20,550.00		20,550.00	20,520.00		30.00
Signal Office		25,800.00		25,800.00	25,290.00		510.00
Office of Quartermaster-General		274,320.00		274,320.00	269,650.00		4,670.00
Office of Commissary-General		74,340.00		74,340.00	73,520.00		820.00
Office of Surgeon-General		166,288.00		166,288.00	163,300.00		2,988.00
Office of Paymaster-General		71,900.00		71,900.00	70,680.00		1,220.00
Office of Chief of Ordnance		83,360.00		83,360.00	82,510.00		850.00
Office of Chief of Engineers		100,220.00		100,220.00	99,600.00		620.00
Bureau of Insular Affairs		87,400.00		87,400.00	86,790.00		610.00
Contingent expenses, War Department		50,000.00		50,000.00	46,987.67		3,012.33
Stationery, War Department		25,000.00		25,000.00	24,230.16		769.84
Rent of buildings, War Department		17,720.00		17,720.00	17,720.00		
Postage to Postal-Union countries, War Department		500.00		500.00			500.00
Statement of receipts and expenditures in Cuba and the Philippine Islands	$654.06			654.06			654.06
Engineer Department:							
Salaries of employees, public buildings and grounds		75,050.00		75,050.00	73,617.00		1,433.00
Contingent expenses, public buildings and grounds		1,000.00		1,000.00	1,000.00		
Total civil establishment	654.06	2,014,868.00		2,015,522.06	1,977,904.83		37,617.23
MILITARY ESTABLISHMENT.							
Support of the army.							
Secretary's office:							
Contingencies of the army		15,000.00		15,000.00	13,945.31		1,054.69
Contingencies of the army, Philippine expedition	.46			.46			.46
Emergency fund, War Department			$4,459.31	4,459.31		$4,459.31	

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Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT—Continued.							
***Support of the army*—Continued.**							
Office of the Chief of Staff:							
Army War College		$10,000.00		$10,000.00	$7,531.09		$2,468.91
Contingencies, military information division, General Staff Corps		10,000.00		10,000.00	9,496.05		503.95
United States service schools		25,000.00		25,000.00	22,530.55		2,469.45
The Adjutant-General's Department:							
Contingencies, headquarters of military departments		7,500.00		7,500.00	6,750.00		750.00
Under the Chief of Coast Artillery:							
Coast Artillery School, Fort Monroe, Va		28,000.00		28,000.00	28,000.00		
Chief Signal Officer:							
Signal service of the army		280,000.00		280,000.00	193,112.09		86,887.91
Washington-Alaska military cable and telegraph system	$41,642.50	100,000.00		141,642.50	87,114.60		54,527.90
Annunciator buzzer systems at target ranges		18,200.00		18,200.00	16,078.47		2,121.53
Submarine cable, Washington to Alaska	35.77			35.77			35.77
Repairs of deep-sea military cables	21,446.07			21,446.07			21,446.07
Wireless-telephone apparatus		30,000.00		30,000.00	27,000.00		3,000.00
Pay Department:							
Pay, etc., of the army		44,531,589.05		44,531,589.05	43,477,187.56		1,054,401.49
Mileage to officers and contract surgeons		625,000.00		625,000.00	524,669.14		100,330.86
Subsistence Department:							
Subsistence of the army	827.00	9,035,001.29		9,035,828.29	9,000,518.14		35,310.15
Quartermaster's Department:							
Regular supplies		9,300,000.00		9,300,000.00	8,098,013.72		1,201,986.28
Equipment of officers' schools, military posts		12,000.00		12,000.00	10,432.49		1,567.51
Incidental expenses		2,250,000.00		2,250,000.00	2,058,836.92		191,163.08
Horses for cavalry, artillery, and engineers		510,000.00		510,000.00	480,043.89		29,956.11
Barracks and quarters		3,500,000.00		3,500,000.00	2,100,348.34		1,399,651.66
Military post exchanges		215,500.00		215,500.00	143,163.23		72,336.77
Transportation of the army and its supplies		12,632,846.50		12,632,846.50	10,654,737.34		1,978,109.16
Roads, walks, wharves, and drainage		1,100,000.00		1,100,000.00	842,995.68		257,004.32
Water and sewers at military posts		2,819,683.00		2,819,683.00	2,280,140.54		539,542.46
Barracks and quarters, Philippine Islands	8,039.15	350,000.00		358,039.15	348,635.64		9,403.51
Clothing, and camp and garrison equipage		7,000,000.00		7,000,000.00	4,853,707.35		2,146,292.65
Construction and repair of hospitals		455,000.00		455,000.00	335,944.27		119,055.73

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Quarters for hospital stewards		75,000.00		75,000.00	61,178.72		13,821.28
Shooting galleries and ranges	54,319.30	154,576.50		208,895.80	154,298.59		54,597.21
Maintenance, Army War College		12,700.00		12,700.00	10,755.38		1,944.62
Army storehouses, Corregidor Island, Philippine Islands		250,000.00		250,000.00	58,579.71		191,420.29
Medical Department:							
Medical and hospital department		700,000.00		700,000.00	664,102.54		35,897.46
Replacing medical supplies destroyed by fire	50,000.00			50,000.00	50,000.00		
Replacing medical supplies	41,809.55		$15,305.87	57,175.42			57,175.42
Field medical equipment	84.00			84.00	84.00		
Army Medical Museum		5,000.00		5,000.00	4,796.05		203.95
Library, Surgeon-General's office		10,000.00		10,000.00	9,551.63		448.37
Bureau of Insular Affairs:							
Care of insane Filipino soldiers		1,500.00		1,500.00	1,500.00		
Engineer Department:							
Engineer depots		30,000.00		30,000.00	29,814.58		185.42
Engineer School, Washington, D. C.		25,000.00		25,000.00	24,729.16		270.84
Engineer equipment of troops		90,000.00		90,000.00	59,998.87		30,001.13
Civilian assistants to engineer officers		40,000.00		40,000.00	39,828.32		171.68
Ordnance Department:							
Ordnance service		325,000.00		325,000.00	313,556.33		11,443.67
Ordnance stores, ammunition	48,778.22	700,000.00		748,778.22	584,687.84		164,090.38
Small-arms target practice	193,314.24	1,330,000.00		1,523,314.24	1,037,985.99		485,328.25
Manufacture of arms	804,866.64	1,700,000.00		2,504,866.64	1,625,043.85		879,822.79
Ordnance stores and supplies	289,692.41	1,000,000.00		1,289,692.41	975,301.35		314,391.06
National trophy and medals for rifle contests		9,000.00		9,000.00	8,982.80		17.20
Fire control in field batteries		62,000.00		62,000.00			62,000.00
Automatic rifles		200,000.00		200,000.00	5,731.09		194,268.91
Replacing ordnance and ordnance stores	1,205,956.95		573,901.70	1,779,858.65			1,779,858.65
Total support of the army	2,760,872.26	101,580,096.34	593,666.88	104,934,635.48	91,341,439.21	$4,459.31	13,588,736.96
Repayments in excess of payments					593,666.88		
Actual expenditures					90,747,772.33		

NOTE.—The account for "Pay of the army, deposit fund," is not included in the foregoing statement of receipts and expenditures of the "Military establishment (support of the army)" for the reason that it represents the savings of enlisted men of the army deposited in the Treasury of the United States, and therefore can not be considered receipts and expenditures of government funds for maintenance of the military establishment. This account appears on the war ledger as follows:

Balance July 1, 1909	$3,280,553.35
Deposited during fiscal year 1910	1,859,888.94
Total	5,140,442.29
Deposits withdrawn, fiscal year 1910	1,542,536.40
Balance available June 30, 1910	3,597,905.89

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Statement of the appropriation of the preceding fiscal year (1910) for the Department of War, as required by the act of May 1, 1820 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1910, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT—Continued.							
Military Academy.							
Pay of Military Academy		$626,873.33		$626,873.33	$554,196.08		$72,677.25
Current and ordinary expenses, Military Academy		139,733.00		139,733.00	139,632.79		100.21
Miscellaneous items and incidental expenses, Military Academy		52,080.00		52,080.00	51,883.26		196.74
Buildings and grounds, Military Academy	$113,318.85	1,339,385.00		1,452,703.85	1,447,885.00		4,818.85
Memorial Hall, West Point, N. Y.	4,000.00			4,000.00			4,000.00
Total Military Academy	117,318.85	2,158,071.33		2,275,390.18	2,193,597.13		81,793.05
Organized militia.							
Arming and equipping the militia	879,443.82	2,000,000.00		2,879,443.82	1,993,438.52	$35,484.04	850,521.26
Supplying new arms and equipments for organized militia		8,441.64		8,441.64	8,441.64		
New arms and equipments for organized militia	51,986.85		$0.21	51,987.06			51,987.06
Field artillery for organized militia	467,185.69			467,185.69	25,157.88		442,027.81
Encampment and maneuvers, organized militia	415,081.35	1,350,000.00		1,765,081.35	644,922.71		1,120,158.64
Equipment of coast artillery, organized militia		25,000.00		25,000.00	24,990.00		10.00
Arms, uniforms, equipments, etc., organized militia		1,398,629.42		1,398,629.42	1,398,629.42		
Total organized militia	1,813,697.71	4,782,071.06	.21	6,595,768.98	4,095,580.17	35,484.04	2,464,704.77
Repayments in excess of payments					.21		
Actual expenditures					4,095,579.96		
Summary military establishment.							
Support of the army	2,760,872.26	101,580,096.34		104,340,968.60	90,747,772.33	4,459.31	13,588,736.96
Military Academy	117,318.85	2,158,071.33		2,275,390.18	2,193,597.13		81,793.05
Organized militia	1,813,697.71	4,782,071.06		6,595,768.77	4,095,579.96	35,484.04	2,464,704.77
Total military establishment	4,691,888.82	108,520,238.73		113,212,127.55	97,036,949.42	39,943.35	16,135,234.78
PUBLIC WORKS—MILITARY.							
Fortifications.							
Engineer Department:							
Gun and mortar batteries	484,569.56			484,569.56	300,426.19		184,143.37

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Fire control at fortifications	588,043.25			588,043.25	281,778.68		306,264.57
Electrical installations at seacoast fortifications	402,281.51			402,281.51	356,716.72		45,564.79
Sites for fortifications and seacoast defenses	381,715.10			381,715.10	267,662.67		114,052.43
Searchlights for harbor defenses	631,546.19			631,546.19	294,541.43		337,004.76
Searchlights for New York Harbor	248.06			248.06	248.06		
Preservation and repair of fortifications	234,123.78			234,123.78	207,882.40		26,241.38
Sea wall, Sandy Hook, N. J.	14,300.00			14,300.00	1,420.00		12,870.40
Repair and protection of defenses, Pensacola, Fla.	748,853.81			748,853.81	175,113.21		573,740.60
Repair and protection of defenses, Mobile, Ala.	550,000.02			550,000.02	336,000.00		214,000.02
Reconstruction and repair of fortifications, Galveston, Tex.	40,479.69			40,479.69	22,246.60		18,233.09
Plans for fortifications	4,000.00			4,000.00	4,000.00		
Supplies for seacoast defenses	40,436.85			40,436.85	38,815.40		1,621.45
Sea walls and embankments	85,117.99			85,117.99	59,605.00		25,512.99
Preservation and repair of torpedo structures	14,134.70			14,134.70	11,565.99		2,568.71
Casemates, galleries, etc., for submarine mines	158,492.46			158,492.46	135,236.74		23,255.72
Torpedocs for harbor defense	28,012.42			28,012.42	3,237.42		24,775.00
Fortifications in insular possessions	2,677,851.88			2,677,851.88	1,674,777.07		1,003,074.81
Torpedo defense of Manila Harbor, P. I.	7,045.04			7,045.04	3,830.38		3,214.66
Sea wall, Fort Travis, Galveston, Tex.	439,000.00			439,000.00	83,850.00		355,150.00
Chief Signal Officer:							
Maintenance, etc., fire-control installations at seacoast defenses	147,819.43			147,819.43	139,840.16		7,979.27
Ordnance Department:							
Armament of fortifications	4,644,555.31			4,644,555.31	1,901,809.59	7.00	2,742,738.72
Submarine mines	547,354.14			547,354.14	356,976.78		190,377.36
Fortifications in insular possessions	1,852,232.88			1,852,232.88	900,461.63		951,771.25
Submarine mines in insular possessions	173,815.64			173,815.64	121,745.73		52,069.91
Board of Ordnance and Fortification	161,301.96			161,301.96	42,641.23		118,060.73
Replacing and repairing ordnance property at gulf forts	30,738.15			30,733.15	882.84		29,850.31
Converting muzzle-loading guns for saluting purposes	2.98			2.98			2.98
Powder and projectiles (proceeds of sales)	30,471.91			30,471.91	19,500.00		10,971.91
Ordnance material (proceeds of sales)	555,938.56	114,341.67		670,280.23	92,428.29	530.43	577,321.51
Quartermaster's Department:							
Torpedo planter for Pacific coast	1.98		365.26	367.24			367.24
Torpedo planters and launches for insular possessions	21,526.02			21,526.02	15,718.48		5,807.54
Under the Chief of Coast Artillery:							
Fire control in insular possessions	396,437.01			396,437.01	205,635.53		190,801.48
Total fortifications	16,092,443.28	114,341.67	365.26	16,207,150.21	8,056,603.82	537.43	8,150,008.96
Repayments in excess of payments					365.26		
Actual expenditures					8,056,238.56		
Arsenals.							
Benicia Arsenal, Benicia, Cal.	12,115.87			12,115.87	7,181.34		4,934.53
Picatinny Arsenal, Dover, N. J.	3,000.00	190,000.00		193,000.00	127,250.00		65,750.00
Rock Island Arsenal, Rock Island, Ill.		147,600.00		147,600.00	79,427.74		68,172.26
Springfield Arsenal, Springfield, Mass.	4,027.73	45,100.00		49,127.73	10,400.00		38,727.73
Watertown Arsenal, Watertown, Mass.	12,866.22	62,000.00		74,866.22	38,551.98		36,314.24
Watervliet Arsenal, West Troy, N. Y.	2,109.03	2,000.00	1,322.99	5,432.02			5,432.02
Frankford Arsenal, Philadelphia, Pa.		30,000.00		30,000.00	30,000.00		
Rock Island Power Plant, Rock Island, Ill.		12,500.00		12,500.00	12,500.00		

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Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—MILITARY—Continued.							
Arsenals—Continued.							
Rock Island Bridge, Rock Island, Ill		$18,000.00		$18,000.00	$18,000.00		
Reconstructing Rock Island Bridge and Viaduct, Ill			$120.49	120.49			$120.49
Proving ground, Sandy Hook, N. J	$89,864.79	35,100.00		124,964.79	100,540.53	$3,100.00	21,324.26
Testing machine		15,000.00		15,000.00	14,922.56		77.44
Ordnance depot, Manila, P. I	10,246.10	12,300.00		22,546.10	12,648.04		9,898.06
Repairs of arsenals		290,000.00		290,000.00	266,182.37		23,817.63
Total arsenals	134,229.74	859,600.00	1,443.48	995,273.22	717,604.56	3,100.00	274,568.66
Repayments in excess of payments					1,443.48		
Actual expenditures					716,161.08		
Military Posts.							
Quartermaster's Department:							
Military posts	640,232.22	800,000.00		1,440,232.22	943,794.26		496,437.96
Military post—							
Fort Crook, Nebr	16,729.79		4,041.00	20,770.79			20,770.79
Fort Snelling, Minn	10,045.30			10,045.30			10,045.30
Fort Sheridan, Ill	36,707.50		3.40	36,710.90			36,710.90
Fort Niagara, N. Y	16,008.42			16,008.42			16,008.42
Columbus, Ohio	180,000.00			180,000.00			180,000.00
Presidio, military reservation, San Francisco, Cal		7,500.00		7,500.00	7,500.00		
Military reservation, Fort Wright, Wash	8,000.00			8,000.00			8,000.00
Military reservation, Fort Monroe, Va	400.00			400.00			400.00
Purchase of land, Fort Taylor, Fla	27.65			27.65			27.65
Purchase of wharf, Fort Taylor, Fla		10,000.00		10,000.00			10,000.00
Conveyance to Le Grand Young of lands in Fort Douglas Military Reservation, Utah	998.10			998.10			998.10
Military prison, Fort Leavenworth, Kans	109,074.59	250,000.00		359,074.59	165,415.22		193,659.37
Military prison, San Francisco, Cal	99,542.05	100,000.00		199,542.05	100,000.00		99,542.05
Water supply, Fort Bayard, N. Mex	817.00			817.00			817.00
Sewerage system, Fort Monroe, Va		11,414.16		11,414.16	11,280.73		133.43
Target range—							
Sparta, Wis	55,343.96			55,343.96	54,873.90		470.06

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Fort McIntosh, Tex	3,000.00			3,000.00			3,000.00
Fort Oglethorpe, Ga	20,050.00			20,050.00	14,815.67		5,234.33
Army supply depot, Fort Mason, Cal	501,247.46	400,000.00		901,247.46	279,496.89		621,750.57
Army general hospital, San Francisco, Cal	2,665.00		148.00	2,813.00			2,813.00
Army general hospital, Washington, D. C	221.90			221.90			221.90
Army hospital, San Juan, P. R	60,000.00			60,000.00			60,000.00
Water supply, Fort Meade, S. Dak		100,000.00		100,000.00	45,135.45		54,864.55
Water supply, Presidio of San Francisco, Cal		100,000.00		100,000.00			100,000.00
Water supply, Fort William Henry Harrison, Mont	20,000.00	40,000.00		60,000.00	435.75		59,564.25
Military camp, Pine Plains, N. Y		75,000.00		75,000.00	75,000.00		
Cold storage and power plant, Fort Bayard, N. Mex		80,000.00		80,000.00	18,213.68		61,786.32
Additional land, Fort Benjamin Harrison, Ind	4,198.19			4,198.19	85.20		4,112.99
Quarters for officers and nurses, Fort Bayard, N. Mex	198,757.17			198,757.17	94,908.68		103,848.49
Military post, Waikiki, Honolulu, Hawaii		50,000.00		50,000.00	49,283.59		716.41
Cavalry post, Territory of Hawaii		200,000.00		200,000.00			200,000.00
Barracks and quarters, seacoast defenses	1,830,892.83	1,500,000.00		3,330,892.83	1,854,150.65		1,476,742.18
Seacoast defenses, Philippine Islands and Hawaii		600,000.00		600,000.00	272,713.29		327,286.71
Fort Moultrie, S. C	26,000.00			26,000.00			26,000.00
Engineer Department:							
Fort Riley Military Reservation, Kans	24,500.00			24,500.00	13,928.65		10,571.35
Fort Crockett Reservation, Galveston, Tex	42,883.00			42,883.00	32,998.50		9,884.50
Enlargement of Governors Island, N. Y	113,281.53	75,000.00		188,281.53	17,000.00		171,281.53
Sea wall—							
Fort Moultrie, S. C	45,000.00			45,000.00	36,008.00		8,992.00
Fort Screven, Ga	50.30			50.30			50.30
Total military posts	4,066,673.96	4,398,914.16	4,192.40	8,469,780.52	4,087,038.11		4,382,742.41
Repayments in excess of payments					4,192.40		
Actual expenditures					4,082,845.71		
Summary public works—military.							
Fortifications	16,092,443.28	114,341.67		16,206,784.95	8,056,238.56	537.43	8,150,008.96
Arsenals	134,229.74	859,600.00		993,829.74	716,161.08	3,100.00	274,568.66
Military posts, etc	4,066,673.96	4,398,914.16		8,465,588.12	4,082,845.71		4,382,742.41
Total public works, military	20,293,346.98	5,372,855.83		25,666,202.81	12,855,245.35	3,637.43	12,807,320.03
PUBLIC WORKS—CIVIL.							
Military parks, etc.							
Secretary's office:							
Chickamauga and Chattanooga National Park	31,598.58	55,000.00		86,598.58	82,352.02		4,246.56
Shiloh National Military Park	17,796.94	46,500.00		64,296.94	35,754.07		28,542.87
Gettysburg National Park	18,047.22	75,000.00		93,047.22	73,362.40		19,684.82
Vicksburg National Military Park	20,291.77	150,000.00		170,291.77	117,098.07		53,193.70
Lincoln tablet, Gettysburg National Park	1,934.60			1,934.60			1,934.60
Monuments and markers at Gettysburg		600.00		600.00	453.91		146.09

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Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—CIVIL—Continued.							
Military parks, etc.—Continued.							
Engineer Department:							
Improvement of Yellowstone National Park	$41,070.81			$41,070.81	$40,928.16		$142.65
Road to Mount Ranier National Park	10,000.00			10,000.00	10,000.00		
Total military parks, etc	140,739.92	$327,100.00		467,839.92	359,948.63		107,891.29
Buildings and grounds in and around Washington.							
Engineer Department:							
Improvement and care of public grounds		12,400.00		12,400.00	12,400.00		
Improvement and care of public grounds, District of Columbia		122,550.00		122,550.00	122,549.62		.38
Repairs, fuel, etc., Executive Mansion		68,000.00		68,000.00	68,000.00		
Lighting, etc., Executive Mansion, etc		20,520.00		20,520.00	18,667.21		1,852.79
Lighting public grounds, District of Columbia		10,200.00		10,200.00	9,500.00		700.00
Telegraph to connect the Capitol with the departments and Government Printing Office		4,000.00		4,000.00	4,000.00		
Repairs to building where Abraham Lincoln died		200.00		200.00	50.00		150.00
Care and maintenance of Washington Monument		11,820.00		11,820.00	11,820.00		
Improvement of Potomac Park, District of Columbia	10,000.00			10,000.00	10,000.00		
Improvement birthplace of Washington, Wakefield, Va		100.00		100.00	100.00		
Tidal gates, Potomac Park, District of Columbia	52.25			52.25	52.25		
Buildings for offices of the President	35,000.00	13,500.00		48,500.00	48,500.00		
Total buildings and grounds in and around Washington	45,052.25	263,290.00		308,342.25	305,639.08		2,703.17
Monuments.							
Engineer Department:							
Memorial to—							
Gen. Ulysses S. Grant	5,000.00	42,000.00		47,000.00	10,000.00		37,000.00
Christopher Columbus	95,700.97			95,700.97	5,700.00		90,000.97
Monument to—							
Gen. Baron Von Steuben	35,000.00			35,000.00	13,500.00		21,500.00
Gen. Count Pulaski	32,006.59	5,000.00		37,006.59	37,006.59		
Commodore John Barry	48,000.00			48,000.00	2,000.00		46,000.00
John Paul Jones	43,000.00			43,000.00			43,000.00
Commemorate the battle of Kings Mountain, S. C			$1,201.51	1,201.51			1,201.51

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Commemorate the battle of Princeton, N. J.	30,000.00			30,000.00			30,000.00
Monument at Monterey, Cal., to commemorate the taking possession of the Pacific coast	9,249.32			9,249.32	9,249.32		
Monument to commemorate the battle of the Revolution, Point Pleasant, W. Va.	3,500.00			3,500.00	3,500.00		
Unveiling statue of Gen. Philip H. Sheridan	700.00			700.00	700.00		
Site and pedestal for memorial to Alexander Hamilton	10,000.00			10,000.00			10,000.00
Unveiling statue of Gen. Thaddeus Kosciuszko		3,500.00		3,500.00	3,500.00		
Memorial monument at Fort Recovery, Ohio		25,000.00		25,000.00			25,000.00
Total monuments	312,150.88	75,500.00	1,201.51	388,858.39	85,155.91		303,702.48
Repayments in excess of payments					1,201.51		
Actual expenditures					83,954.40		
Rivers and harbors.							
Engineer Department:							
Breakwater from Mount Desert to Porcupine Island, Me.	340.39			340.39			340.39
Improving harbor at—							
Cape Porpoise, Me.	7,498.85			7,498.85			7,498.85
Portland, Me.	10,000.00			10,000.00	993.56		9,006.44
Rockland, Me.	5,474.21			5,474.21			5,474.21
Burlington, Vt.	5,000.00			5,000.00	500.00		4,500.00
Gloucester, Mass.	4,103.33			4,103.33			4,103.33
Boston, Mass.	1,579,884.63			1,579,884.63	1,196,534.63		383,350.00
Salem, Mass.	500.00			500.00			500.00
Lynn, Mass.	5,000.00			5,000.00			5,000.00
Newburyport, Mass.	1,795.31			1,795.31	795.31		1,000.00
Beverly, Mass.	21,000.00			21,000.00	7,500.00		13,500.00
Improving harbors at—							
Plymouth and Provincetown, Mass.	14,870.94			14,870.94	8,570.94		6,300.00
Hyannis and Nantucket, Mass.	488.96			488.96	488.96		
Harbor of refuge at Sandy Bay, Cape Ann, Mass.	161,000.00			161,000.00	32,000.00		129,000.00
Improving—							
Woods Hole Channel, Mass.	66,000.00			66,000.00	1,000.00		65,000.00
Harbor at Hingham, Mass.	9,672.28			9,672.28			9,672.28
Dorchester Bay and Neponset River, Mass.	78,500.00			78,500.00	47,851.55		30,648.45
Harbors at New Bedford and Fairhaven, Mass.	26,000.00			26,000.00	26,000.00		
Improving harbor at—							
Nantucket, Mass.	1,500.00			1,500.00	1,500.00		
Newport, R. I.	61,853.53			61,853.53	7,758.74		54,094.79
Improving entrance to Point Judith Pond, R. I.	7,500.00			7,500.00			7,500.00
Improving harbor at Sakonnet, R. I.	400.00			400.00	400.00		
Improving harbor at Great Salt Pond, Block Island, R. I.	600.00			600.00	600.00		
Harbor of refuge at Point Judith, R. I.	32,800.00			32,800.00	8,800.00		24,000.00
Improving harbor at—							
Bridgeport, Conn.	120,051.71			120,051.71	85,051.71		35,000.00
Branford, Conn.	1,500.00			1,500.00			1,500.00
New London, Conn.	2,000.00			2,000.00			2,000.00
Norwalk, Conn.	10,286.30			10,286.30	286.30		10,000.00
Harbor of refuge, Duck Island Harbor, Conn.	3,892.75			3,892.75	3,892.75		
Breakwater at New Haven, Conn.	110,106.20			110,106.20	99,628.48		10,477.72

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Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—CIVIL—Continued.							
Rivers and harbors—Continued.							
Engineer Department—Continued.							
Improving harbor at—							
Dunkirk, N. Y	$2,203.16			$2,203.16			$2,203.16
Tarrytown, N. Y	2,309.00		$1.50	2,310.50			2,310.50
Milford, Conn	1,326.54			1,326.54			1,326.54
Improving—							
New York Harbor, N. Y	700,109.39			700,109.39	$420,309.11		279,800.28
Harbor at Buffalo, N. Y	360,413.43			360,413.43	219,196.35		141,217.08
Black Rock Harbor, N. Y	1,575,322.25			1,575,322.25	599,453.75		975,868.49
Wallabout Channel, N. Y	20,076.38			20,076.38	3,075.88		17,000.50
Harbor at Great Sodus Bay, N. Y	37,929.34			37,929.34	20,901.00		17,028.34
Harbor at Pultneyville, N. Y	112.16		219.87	332.03			332.03
Harbors at Port Jefferson, Mattituck, Huntington, Glencove, Flushing Bay, Canarsie Bay, and Sag Harbor, N. Y	13,150.00			13,150.00	7,700.00		5,450.00
Improving harbor at—							
Port Chester, N. Y	2,500.00			2,500.00	2,499.25		.75
Larchmont, N. Y	19,905.04			19,905.04	2,905.04		17,000.00
Echo Bay, N. Y	3,500.00		1.25	3,501.25			3,501.25
Saugerties, N. Y	1,000.00			1,000.00			1,000.00
Cape Vincent, N. Y	193.64			193.64			193.64
Oswego, N. Y	74,017.50			74,017.50	54,899.39		19,118.11
Little Sodus Bay, N. Y	36,020.00			36,020.00	15,891.24		20,128.76
Charlotte, N. Y			4.10	4.10			4.10
Improving—							
Channel in Gowanus Bay, N. Y	310,361.01			310,361.01	266,098.11		44,262.90
Great South Bay, N. Y	3,000.00			3,000.00	2,000.00		1,000.00
Tonawanda Harbor and Niagara River, N. Y	30,238.16		34.29	30,272.45			30,272.45
Harbor at Ogdensburg, N. Y	17,500.00			17,500.00	3,985.00		13,515.00
Arthur Kill, N. Y., and N. J	154,170.00			154,170.00	69,994.90		84,175.10
Raritan Bay, N. J	1,000.00			1,000.00	1,000.00		
Improving harbor at—							
Erie, Pa	68,008.83			68,008.83	27,864.67		40,144.16
Wilmington, Del	8,449.12		11.76	8,460.88			8,460.88
Norfolk, Va	308,005.15			308,005.15	208,005.15		100,000.00

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Improving—							
Hampton Roads, Va	5,000.00			5,000.00	5,000.00		
Harbor at Cape Charles City, Va	5,000.00		250.00	5,250.00			5,250.00
Harbor at Beaufort, N. C	3,600.00			3,600.00	1,000.00		2,600.00
Waterway from Pamlico Sound to Beaufort Inlet, N. C	367,000.00			367,000.00	230,000.00		137,000.00
Improving—							
Harbor at Charleston, S. C	7,000.00		2,000.00	9,000.00			9,000.00
Winyah Bay, S. C	875.00			875.00	875.00		
Harbor at Savannah, Ga	429,889.17			429,889.17	310,889.17		119,000.00
Harbor at Brunswick, Ga	119,150.00			119,150.00	79,150.00		40,000.00
Waterway between Charleston and Alligator Creek, S. C	2,000.00			2,000.00			2,000.00
Cumberland Sound, Ga. and Fla	15,413.17			15,413.17	10,000.00		5,413.17
Improving harbor at—							
Key West, Fla	43,576.23			43,576.23	27,015.60		16,560.63
Pensacola, Fla	778.73			778.73	778.73		
Fernandina, Fla	5,300.00			5,300.00	1,500.00		3,800.00
Improving—							
Hillsboro Bay, Fla	510.68			510.68	493.35		17.33
Biscayne Bay, Fla	190,997.10			190,997.10	113,000.00		77,997.10
Saresota Bay, Fla	3.35			3.35			3.35
Apalachicola Bay, Fla	151.64			151.64	151.64		
Carabelle Bar and Harbor, Fla	3.30			3.30	3.30		
Improving harbor at—							
Mobile, Ala	29,681.76			29,681.76	4,681.76		25,000.00
Biloxi, Miss	700.00			700.00			700.00
Improving—							
Harbors on coast of Mississippi	64,000.00			64,000.00	64,000.00		
Galveston ship channel and Buffalo Bayou, Tex	57,351.34			57,351.34	24,982.25		32,369.09
Harbor at Galveston, Tex	111,686.87			111,686.87	49,373.82		62,313.05
Channel from Galveston Harbor to Texas City, Tex	22,000.60			22,000.60	22,000.25		.35
Inland waterway on coast of Texas	46,893.71			46,893.71	32,637.18		14,256.53
Improving harbor at—							
Cleveland, Ohio	646,032.65			646,032.65	419,618.38		226,414.27
Ashtabula, Ohio	79,023.30			79,023.30	61,500.00		17,523.30
Lorain, Ohio	115,052.39			115,052.39	5,100.00		109,952.39
Conneaut, Ohio	30,462.10			30,462.10	10,511.79		19,950.31
Sandusky, Ohio	192,800.00			192,800.00	42,000.00		150,800.00
Huron, Ohio	26,800.00			26,800.00			26,800.00
Fairport, Ohio	61,500.00			61,500.00	24,000.00		37,500.00
Michigan City, Ind	40,059.06			40,059.06	19,319.16		20,739.90
Calumet, Ill	87,000.00			87,000.00	7,000.00		80,000.00
Chicago, Ill	215,714.47			215,714.47	181,081.31		34,633.16
Waukegan, Ill	18,496.24			18,496.24	18,496.24		
Cheboygan, Mich	8,781.72			8,781.72			8,781.72
Grand Haven, Mich	37,000.00			37,000.00	15,500.00		21,500.00
Ludington, Mich	253,046.19			253,046.19	253,046.19		
Manistique, Mich	40,790.93			40,790.93	40,790.93		
South Haven, Mich	55,000.00			55,000.00	9,000.00		46,000.00
Holland, Mich	57,000.00			57,000.00	44,500.00		12,500.00
Muskegon, Mich	29,000.00			29,000.00	29,000.00		
Manistee, Mich	20,000.00			20,000.00	17,500.00		2,500.00
Frankfort, Mich	25,000.00			25,000.00	23,462.91		1,537.09

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Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—CIVIL—Continued.							
Rivers and harbors—Continued.							
Engineer Department—Continued.							
Improving harbor at—Continued.							
Charlevoix, Mich	$14,500.00			$14,500.00	$3,500.00		$11,000.00
Marquette, Mich	26,430.00			26,430.00	4,000.00		22,430.00
Harbor of refuge at Marquette Bay, Mich	300.00			300.00			300.00
Improving harbors at Pentwater and White Lake, Mich	8,151.33			8,151.33	8,151.33		
Harbor of refuge at—							
Portage Lake, Mich	2,500.00			2,500.00	2,500.00		
Grand Marais, Mich	16,193.65			16,193.65	16,193.65		
Improving St. Joseph Harbor and River, Mich	14,900.00			14,900.00	10,000.00		4,900.00
Improving Menominee Harbor and River, Mich	3,008.34			3,008.34	1,008.34		2,000.00
Improving harbor at Gladstone, Mich	5,997.46			5,997.46			5,997.46
Harbor of refuge, Harbor Beach, Mich	15,201.76			15,201.76	7,000.00		8,201.76
Improving harbor at—							
Duluth, Minn., and Superior, Wis	159,621.79			159,621.79	56,718.18		102,903.61
Agate Bay, Minn	5,529.63			5,529.63	4,500.00		1,029.63
Grand Marais, Minn	6,000.00			6,000.00			6,000.00
Improving Warroad Harbor and River, Minn	30.61			30.61	30.61		
Improving harbor at—							
Ashland, Wis	6,241.87			6,241.87	6,241.87		
Kenosha, Wis	2,608.93			2,608.93	2,608.93		
Manitowoc, Wis	69,910.28			69,910.28	39,910.28		30,000.00
Milwaukee, Wis	280,482.04			280,482.04	82,710.31		197,771.73
Port Washington, Wis	2,066.96			2,066.96	500.00		1,566.96
Sheboygan, Wis	6,402.90			6,402.90			6,402.90
Racine, Wis	2,419.83			2,419.83	1,419.83		1,000.00
Two Rivers, Wis	22,731.00			22,731.09	13,425.50		9,305.59
Algoma, Wis	41,206.03			41,206.03	7,706.03		33,500.00
Sturgeon Bay and Lake Michigan Ship Canal	30,010.41			30,010.41			30,010.41
Ship channel connecting waters of the Great Lakes between Chicago, Duluth, and Buffalo			$150.50	150.50			150.50
Improving harbor at—							
San Luis Obispo, Cal	136,751.35			136,751.35	313.12		136,438.23
San Diego, Cal	111.72			111.72			111.72
Wilmington, Cal	47,163.42			47,163.42	42,964.75		4,198.67

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San Pedro, Cal	129,953.17			129,953.17	62,045.37	67,907.80
Oakland, Cal	251,500.00			251,500.00	216,500.00	35,000.00
Improving Humboldt Harbor and Bay, Cal	8,898.70			8,898.70	2.80	8,895.90
Improving San Pablo Bay, Cal	20,262.27			20,262.27		20,262.27
Improving entrance to Coos Bay and Harbor, Oreg	17,443.41			17,443.41	17,109.00	334.41
Improving harbor at Olympia, Wash	7,053.91			7,053.91		7,053.91
Improving Grays Harbor and Chehalis River, Wash	2,007.47			2,007.47	1,918.53	88.94
Improving harbor at—						
Tacoma, Wash	186,500.00			186,500.00	94,999.60	91,500.40
New Whatcom, Wash	2,326.02			2,326.02		2,326.02
Improving—						
Grays Harbor, Wash	237,409.61			237,409.61	147,444.93	89,964.68
Harbor at Honolulu, Hawaii	2,984.00			2,984.00	2,983.50	.50
St. Michael Canal, Alaska	175,972.57			175,972.57	175,898.45	74.12
Improving harbor at—						
San Juan, P. R	339,995.10			339,995.10	195,002.10	144,993.00
Hilo, Hawaii	286,000.45			286,000.45	171,000.45	115,000.00
Improving—						
Kennebunk River, Me	134.13			134.13		134.13
Sasanoa River, Me	10,000.00			10,000.00	1,000.00	9,000.00
Saco River, Me	5,241.63			5,241.63	1,241.63	4,000.00
Union River, Me	2,398.64			2,398.64		2,398.64
Lubec Channel, Me	11,567.02			11,567.02		11,567.02
Kennebec River, Me	147,833.51			147,833.51	107,806.54	40,026.97
Penobscot River, Me	126,500.00			126,500.00	10,000.00	116,500.00
Cocheco River, N. H	4,711.00			4,711.00		4,711.00
Narrows of Lake Champlain, N. Y. and Vt	4,335.00			4,385.00		4,335.00
Essex River, Mass	6,350.00			6,350.00	6,350.00	
Weymouth River, Mass	2,500.00			2,500.00		2,500.00
Taunton River, Mass	300.00			300.00		300.00
Mystic and Malden rivers, Mass	25,400.00			25,400.00	11,687.01	13,712.99
Merrimac River, Mass	2,000.00			2,000.00	2,000.00	
Providence River and Harbor, R. I	18,228.00			18,228.00	4,845.39	13,382.61
Pawtucket River, R. I	92,584.00			92,584.00	64,000.00	28,584.00
Connecticut River between Hartford, Conn., and Holyoke, Mass	4,918.27			4,918.27		4,918.27
Thames River, Conn	15,000.00		200.00	15,200.00		15,200.00
Connecticut River, Conn	3,000.00			3,000.00	3,000.00	
Newtown Creek, N. Y	17,000.00			17,000.00	11,690.11	5,309.89
Harlem River, N. Y	67.80			67.80	67.80	
Bronx River and East Chester Creek, N. Y	7,000.00			7,000.00	7,000.00	
Removing obstructions in East River and Hell Gate, N. Y	274,000.00			274,000.00	69,999.50	204,000.50
Improving—						
Browns Creek, N. Y	4,000.00			4,000.00	2,000.00	2,000.00
Wappinger Creek, N. Y	1,500.00			1,500.00		1,500.00
Cold Spring Inlet, N. J	679,724.99			679,724.99	280,010.50	399,714.49
Salem River, N. J	100.00			100.00	100.00	
Cooper Creek, N. J	3,454.98			3,454.98	3,454.98	
Mantua Creek, N. J	100.00			100.00	100.00	
Alloway Creek, N. J	100.00			100.00	100.00	
Raccoon Creek, N. J	15,000.00			15,000.00	11,494.58	3,505.42
Tuckerton Creek, N. J	9,200.00			9,200.00	5,200.00	4,000.00

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Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—CIVIL—Continued.							
***Rivers and harbors*—Continued.**							
Engineer Department—Continued.							
Improving—Continued.							
Raccoon River, N. J.	$2,192.52			$2,192.52	$2,192.52		
Keyport Harbor, Mattawan Creek, Raritan, South, and Elizabeth rivers, and Shoal Harbor, and Compton Creek and Cheesequake Creek, N. J.	1,201.00			1,201.00	501.00		$700.00
Cohansey River, N. J.	32,550.00			32,550.00	350.00		32,200.00
Passaic River, N. J.	269,602.95			269,602.95	133,093.55		136,509.40
Shrewsbury River, N. J.	6.00			6.00	6.00		
Delaware River, Pa. and N. J.	79,996.89			79,996.89	79,968.73		28.16
Monongahela River, Pa.	149,807.55			149,807.55	114,718.29		35,089.26
Dam at Herrs Island, Allegheny River, near Pittsburg, Pa.	1,945.23			1,945.23	1,120.23		825.00
Improving—							
Appoquinimink, Murderkill, and Mispillion rivers, Del.	3,350.00			3,350.00	3,350.00		
Broadkill River, Del.	100.00			100.00	100.00		
Patapsco River, Md.	978,629.42			978,629.42	499,644.58		478,984.84
Anacostia River, D. C.	11,997.87			11,997.87	11,997.87		
Potomac River	31,212.83			31,212.83	31,212.83		
Appomattox River, Va.	13,800.12			13,800.12	13,800.12		
Blackwater River, Va.	4,800.00			4,800.00	400.00		4,400.00
James River, Va.	70,343.54			70,343.54	70,343.54		
Rappahannock River, Va.	27,000.00			27,000.00	21,000.00		6,000.00
York, Mattaponi, and Pamunkey rivers, and Occoquan, Lower Machodoc, Nandua, Aquia, and Carters creeks, Va.	1,000.00			1,000.00	1,000.00		
Big Sandy River, W. Va. and Ky.	131,880.64			131,880.64	122,677.62		9,203.02
Great Kanawha River, W. Va.	43,310.40			43,310.40	4,104.60		39,205.80
Monongahela River, W. Va.	69,778.10			69,778.10	7,674.82		62,103.28
Little Kanawha River, W. Va.	51,000.00			51,000.00	6,100.00		44,900.00
Cape Fear River, N. C.	90,000.00			90,000.00	89,733.78		266.22
Scuppernong River, N. C.	1,000.00			1,000.00	1,000.00		
Beaufort Inlet, N. C.	4,700.00			4,700.00	4,700.00		
Roanoke, River, N. C.	2,003.25			2,003.25	493.50		1,509.75
Neuse and Trent Rivers, N. C.	5,000.00			5,000.00	5,000.00		
Northeast, Black, and Cape Fear rivers, N. C.	5,850.00			5,850.00	3,350.00		2,500.00
Meherrin River, N. C.	2,000.00			2,000.00			2,000.00

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New River and waterways to Beaufort, N. C	1,900.00			1,900.00	1,900.00		
Waccamaw and Little Pedee rivers, N. C. and S. C	1,146.99			1,146.99	1,146.99		
Great Pedee River, S. C	3,600.70			3,600.70	3,600.70		
Lynchs River and Clarks Creek, S. C	229.75			229.75	229.75		
Santee, Wateree, and Congaree rivers, S. C	8,500.00			8,500.00	8,500.00		
Waterway between Savannah, Ga., and Fernandina, Fla	688.70			688.70	688.70		
Savannah River, Ga	9,314.00			9,314.00	9,314.00		
Altamaha, Oconee, and Ocmulgee rivers, Ga	11,900.00			11,900.00	2,500.00		9,400.00
Club and Plantation creeks, Ga	20,000.00			20,000.00	250.00		19,750.00
Coosa, Ostenaula, and Coosawattee rivers, Ga. and Ala	31.06			31.06			31.06
Coosa River, Ga. and Ala	800.00			800.00	800.00		
St. Johns River, Fla	46,184.56			46,184.56	36,045.25		10,139.31
Blackwater River, Fla	42.71			42.71	42.71		
Oklawaha River, Fla	3.00			3.00			3.00
Escambia and Conecuh rivers, Fla. and Ala	5,495.14			5,495.14	5,495.14		
Crystal, Manatee, Anclote, Suwanee, and Withlacoochee rivers, Fla	24,706.72			24,706.72	19,481.72		5,225.00
Withlacoochee River, Fla	149,998.60			149,998.60	115,001.40		34,997.20
Removing the water hyacinth, Florida, Texas, and Louisiana	16,936.80			16,936.80	11,435.26		5,501.54
Improving—							
Kissimee River, Fla	45.48			45.48			45.48
Black Warrior, Warrior, and Tombigbee rivers, Ala	1,113,312.30			1,113,312.30	607,380.47		505,931.83
Alabama River, Ala	29,955.13			29,955.13	29,955.13		
Tombigbee River, Ala	2,500.00			2,500.00	2,500.00		
Yazoo, Tallahatchie, Coldwater, and Big Sunflower rivers and Tchula Lake, Miss	69,463.30			69,463.30	56,585.54		12,877.76
Pascagoula, Chickashay, and Leaf rivers, Miss	5,000.00			5,000.00	3,000.00		2,000.00
Pearl River, Miss	2,000.00			2,000.00	2,000.00		
Homochitto River, Miss	2,000.00			2,000.00	2,000.00		
Wolf and Jordan rivers, Miss	500.00			500.00			500.00
Mississippi River	2,826,793.96			2,826,793.96	2,391,674.28		435,119.68
Mississippi River from mouth of Ohio River to Minneapolis, Minn	1,050,514.30			1,050,514.30	776,504.30		274,010.00
Reservoirs at headwaters of Mississippi River	136,869.27			136,869.27	32,785.09		104,084.18
Board on examination and survey of Mississippi River	18,282.90			18,282.90	10,000.54		8,282.36
Improving Southwest Pass, Mississippi River	1,369,796.71			1,369,796.71	559,880.02		809,916.69
Maintenance of South Pass Channel, Mississippi River	27,420.12	$100,000.00		127,420.12	109,250.25		18,169.87
Operating snag and dredge boats on upper Mississippi, Illinois, and Minnesota rivers		25,000.00		25,000.00	25,000.00		
Gauging waters of Mississippi River and its tributaries		9,600.00		9,600.00	8,600.00		1,000.00
Removing obstructions in Mississippi, Atchfalaya, and Old rivers		100,000.00		100,000.00	99,810.20		189.80
Examinations and surveys at South Pass, Mississippi River		10,000.00		10,000.00	9,000.00		1,000.00
Improving—							
Red River, La. and Ark	136,322.47			136,322.47	16,205.17		120,117.30
Calcasieu River and Pass, La	15,000.00			15,000.00	2,000.00		13,000.00
Bogue Chitto, Bogue Falia, Bayou Manchac, Amite, Chefuncte, and Tickfaw rivers, La	13,500.00			13,500.00	1,500.00		12,000.00
Bayou Plaquemine, La	164,995.64			164,995.64	54,977.84		110,017.80
Bayou Teche, La	124,900.00			124,900.00	5,000.00		119,900.00
Bayous Bartholomew, Macon, D'Arbonne, and Corney, and Boeuf and Tensas rivers, La	2,000.00			2,000.00	2,000.00		
Waterway from Franklin to Mermentau, La	264,691.84			264,691.84	24,979.35		239,712.49

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PUBLIC WORKS—CIVIL—Continued.							
***Rivers and harbors*—Continued.**							
Engineer Department—Continued.							
Improving—Continued.							
Johnsons Bayou, La	$2,300.00			$2,300.00	$2,300.00		
Bayou Vermilion and Mermentau River, La	10,000.00			10,00.000	7,029.41		$2,970.59
Mouth of Brazos River, Tex	17,000.16			17,000.16	1,000.00		16,000.16
Brazos River, Tex	79,069.35			79,069.35	62,004.25		17,065.10
Funds contributed by the citizens of Dallas, Tex., for improvement of Trinity River, Tex	43,000.00			43,000.00	10,000.00		33,000.00
Improving Trinity River, Tex	427,523.26			427,523.26	100,506.15		327,017.11
Improving—							
Aransas Pass and Bay, Tex	8.45		$3.90	12.35			12.35
Sabine and Neches rivers, Tex	81,501.00			81,501.00	5,400.00		76,101.00
Sulphur River, Tex. and Ark	17,500.00			17,500.00	7,000.00		10,500.00
Arkansas River, Ark	6,518.91			6,518.91	215.57		6,303.34
Ouachita River, Ark. and La	612,822.53			612,822.53	185,845.45		426,977.08
Cache River, Ark	15.64			15.64	15.64		
White River, Ark	5,622.25			5,622.25	5,622.25		
St. Francis River, Ark	1,442.42			1,442.42	1,442.42		
Black and Current rivers, Ark. and Mo	513.69			513.69	513.69		
Upper White River, Ark	513.53			513.53	71.00		442.53
Arkansas River at Pine Bluff and White River at Augusta Narrows, Ark	3,522.85			3,522.85	3,474.95		47.90
Cumberland River above Nashville, Tenn	376,127.30			376,127.30	291,017.25		85,110.05
Cumberland River below Nashville, Tenn	227.25			227.25	210.75		16.50
Tennessee River above Chattanooga, Tenn	1,489.91			1,489.91	1,489.91		
Tennessee River below Chattanooga, Tenn., Ala., and Ky	264,683.46			264,683.46	235,683.66		28,999.80
Clinch, Hiawassee, and Holston rivers, Tenn	617.41			617.41	14.15		603.26
Obion and Forked Deer rivers, Tenn	1,000.00			1,000.00			1,000.00
Kentucky River, Ky	567,061.76			567,061.76	328,276.94		238,784.82
Falls of the Ohio River at Louisville, Ky	52,980.40			52,980.40	20,000.00		32,980.40
Green River, Ky	580.17			580.17	335.13		245.04
Caney Fork River, Tenn	12.25		160.17	172.42			172.42
Ohio River	262,847.20			262,847.20	68,416.50	$180.18	194,250.52
Ohio River below Pittsburg, Pa	2,181,514.68			2,181,514.68	1,144,743.03		1,036,771.65
Operating snag boats on the Ohio River		$50,000.00		50,000.00	35,800.00		14,200.00

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Removal of ice gorges in the Ohio River		10,000.00		10,000.00	2,870.00		7,130.00
Improving—							
Muskingum River, Ohio	49,021.34			49,021.34	27,000.00		22,021.34
Detroit River, Mich	3,288,217.85			3,288,217.85	2,122,000.00		1,166,217.85
Grand River, Mich	41,000.00			41,000.00	10,000.00		31,000.00
Saginaw River, Mich	16,869.94			16,869.94	16,869.94		
St. Marys River, Mich	2,161,173.97			2,161,173.97	634,902.26		1,526,271.71
Middle and West Neebish channels, St. Marys River, Mich.	50,987.92		477.29	51,465.21			51,465.21
Hay Lake and Neebish channels, St. Marys River, Mich	419,367.19			419,367.19	314,545.77		104,821.42
Black and Rouge rivers and harbor, at Monroe, Mich	2,180.89			2,180.89			2,180.89
Illinois and Mississippi Canal	90,074.26			90,074.26	52,490.81		37,583.45
Improving waterway from Keweenaw Bay to Lake Superior, Mich	1,331.29			1,331.29			1,331.29
Improving—							
Fox River, Wis	20,718.82			20,718.82	14,818.82		5,900.00
Minnesota River, Minn	1,341.95			1,341.95	393.53		948.42
Red River of the North, Minn. and Dak	66.44			66.44	40.60		25.84
Calumet River, Ill. and Ind	283,839.77			283,839.77	53,839.77		230,000.00
Illinois River, Ill	76,946.07			76,946.07	16,466.65		60,479.42
Osage River, Mo. and Kans	134,088.29			134,088.29	64,872.05		69,216.24
Missouri River	51,800.10			51,800.10	50,504.39		1,295.71
Missouri River from mouth to Sioux City, Iowa	1,693.20			1,693.20	1,693.20		
Missouri River from Stubbs Ferry, Mont., to Sioux City, Iowa	761.41			761.41	761.41		
Sacramento River, Cal	40.81		3.59	44.40			44.40
Sacramento and Feather rivers, Cal	97,932.28			97,932.28	31,415.44		66,516.84
Petaluma Creek and Napa River, Cal	2,500.00			2,500.00	2,500.00		
Mokelumne River, Cal	2,197.12			2,197.12	2,197.12		
Stockton and Mormon channels, Cal	215,745.00			215,745.00	161,350.00		54,395.00
Coos River, Oreg	1,663.70			1,663.70			1,663.70
San Joaquin River, Cal	1,200.00			1,200.00	1,200.00		
Columbia and Lower Willamette rivers below Portland, Oreg.			663.88	663.88			663.88
Mouth of Columbia River, Oreg. and Wash	671,492.81			671,492.81	671,047.52		445.29
Columbia River at Cascades, Oreg	611.88			611.88	500.00		111.88
Waterway connecting Puget Sound with Lakes Union and Washington			1.95	1.95			1.95
Columbia River at Three Mile Rapids, Oreg. and Wash	579,418.77			579,418.77	275,408.37		304,010.40
Upper Columbia and Snake rivers, Oreg. and Wash	34,980.00			34,980.00	21,150.00		13,830.00
Gauging waters of Columbia River	1,300.00			1,300.00	100.00		1,200.00
Improving—							
Coquille River, Oreg	3,100.00			3,100.00			3,100.00
Willamette and Yamhill rivers, Oreg			332.00	332.00			332.00
Columbia River, Wash	9,334.01			9,334.01	9,334.01		
Cowlitz and Lewis rivers, Wash	2,393.30			2,393.30	2,250.00		143.30
Okanogan and Pend O'Reille rivers, Wash	13,781.79			13,781.79	2,501.60		11,280.19
Willapa River and Harbor, Wash	187.33		6.90	194.23			194.23
Puget Sound, Wash	15.58		79.75	95.33			95.33
Grays River, Wash	100.00			100.00	100.00		
Columbia River between Wenatchee and Bridgeport, Wash.	8,409.80			8,409.80	1,997.50		6,412.30
Preservation and maintenance of river and harbor works	7,560,875.00			7,560,875.00	5,103,295.00		2,457,580.00
Emergencies in river and harbor works	676,805.28			676,805.28	187,360.12		489,445.16
Examinations, surveys, and contingencies of rivers and harbors	833,680.13			833,680.13	730,886.15		102,793.98

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Statement of the appropriation of the preceding fiscal year (1910) for the Department of War, as required by the act of May 1, 1820 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1910, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—CIVIL—Continued.							
Rivers and harbors—Continued.							
Engineer Department—Continued.							
Removing sunken vessels or craft obstructing or endangering navigation		$108,148.60		$108,148.60	$108,148.60		
Operating and care of canals and other works of navigation		1,880,416.86		1,880,416.86	1,880,416.86		
Total rivers and harbors	$45,947,299.82	2,293,165.46	$4,602.70	48,245,067.98	29,028,655.21	$180.18	$19,216,232.59
Repayments in excess of payments					4,602.70		
Actual expenditures					29,024,052.51		
Summary public works—Civil.							
Military parks, etc	140,739.92	327,100.00		467,839.92	359,948.63		107,891.29
Buildings and grounds in and around Washington	45,052.25	263,290.00		308,342.25	305,639.08		2,703.17
Monuments	312,156.88	75,500.00		387,656.88	83,954.40		303,702.48
Rivers and harbors	45,947,299.82	2,293,165.46		48,240,465.28	29,024,052.51	180.18	19,216,232.59
Total public works—civil	46,445,248.87	2,959,055.46		49,404,304.33	29,773,594.62	180.18	19,630,529.53
Summary public works.							
Public works:							
Military	20,293,346.98	5,372,855.83		25,666,202.81	12,855,245.35	3,637.43	12,807,320.03
Civil	46,445,248.87	2,959,055.46		49,404,304.33	29,773,594.62	180.18	19,630,529.53
Total public works	66,738,595.85	8,331,911.29		75,070,507.14	42,628,839.97	3,817.61	32,437,849.56
MISCELLANEOUS.							
National cemeteries.							
Secretary's office:							
Marking graves of confederate soldiers and sailors who died in northern prisons	147,069.16			147,069.16	28,012.02		119,057.14
Quartermaster's Department:							
National cemetery—							
Shiloh, Tenn		18,000.00		18,000.00			18,000.00

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Little Rock, Ark		7,000.00		7,000.00	6,969.10		30.90
San Antonio, Tex		7,000.00		7,000.00	6,878.69		121.31
Chalmette, La		5,500.00		5,500.00			5,500.00
Near Richmond, Va	5.15			5.15			5.15
Mills Spring, Ky	12,500.00			12,500.00			12,500.00
City of Mexico, Mexico	14,968.50		13.32	14,981.82			14,981.82
Camp Butler National Cemetery, Riverton, Ill		7,000.00		7,000.00	6,995.35		4.65
National cemeteries		120,000.00		120,000.00	117,895.11		2,104.89
Pay of superintendents of national cemeteries		62,780.00		62,780.00	62,750.00		30.00
Headstones for graves of soldiers	74,500.00			74,500.00	74,291.65		208.35
Burial of indigent soldiers		3,500.00		3,500.00	2,200.00		1,300.00
Repairing roads to national cemeteries		12,000.00		12,000.00	3,283.52		8,716.48
Road to national cemetery—							
Balls Bluff, Va	42.10			42.10			42.10
Dover, Tenn	752.20			752.20			752.20
Fencing, etc., monument on Big Hole battlefield, Mont	368.50		282.50	651.00			651.00
Road from Harrisonville to Fort Mott and national cemetery, Finns Point, N. J		10,000.00		10,000.00			10,000.00
Marking graves of soldiers and sailors on Isle St. Michel	623.60			623.60	615.00		8.00
Confederate mound, Oakwood Cemetery, Chicago, Ill		250.00		250.00	250.00		
Repairs to soldiers' monument, national cemetery, Knoxville, Tenn	110.00			110.00			110.00
Arlington National Cemetery, Va		10,000.00		10,000.00	9,418.34		581.66
Monuments or tablets in Cuba or China	2,224.61		121.17	2,345.78			2,345.78
Antietam battlefield preservation		4,500.00		4,500.00	4,500.00		
Bringing home remains of officers and soldiers and civil employees		50,000.00		50,000.00	22,433.03		27,566.97
Total national cemeteries	253,163.82	317,530.00	416.99	571,110.81	346,491.81		224,619.00
Repayments in excess of payments					416.99		
Actual expenditures					346,074.82		
Miscellaneous objects.							
Secretary's office:							
Wagon roads, bridges, and trails, Alaska fund	8,335.00	182,028.17		190,363.17	74,881.67		115,481.50
Construction and maintenance of military and post roads, bridges, and trails, Alaska		350,000.00		350,000.00	350,000.00		
Survey for mail and pack trail, Fairbanks to Council City, Alaska	329.33			329.33			329.33
Philippine exhibit, Alaska-Yukon-Pacific Exposition, Seattle, Wash	12,974.51			12,974.51	3,842.30		9,132.21
Medals for volunteers, war with Spain	980.98		1.75	982.73			982.73
Entertainment of foreign military representatives, Jamestown Exposition	2,442.09			2,442.09			2,442.09
Gold medals for Orville Wright and Wilbur Wright	300.00			300.00	285.36		14.64
Expenses of the United States and foreign troops, Jamestown, Exposition	7,187.53			7,187.53			7,187.53
Medals of honor for distinguished services	782.92			782.92			782.92
Soldiers' Home interest account	23,956.82	100,479.19		124,436.01	98,831.62		25,604.39
Quartermaster's Department:							
Post-office, Jefferson Barracks, Mo	1,167.21			1,167.21			1,167.21
Purchase of flags for Memorial Day	31.25			31.25			31.25

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Statement of the appropriation of the preceding fiscal year (1910) for the Department of War, as required by the act of May 1, 1820 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1910, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MISCELLANEOUS—Continued.							
***Miscellaneous objects*—Continued.**							
Quartermaster's Department—Continued.							
Claims for damages to and loss of private property	$1,551.35			$1,551.35			$1,551.35
Claims for property taken from confederate officers and soldiers after surrender	36,428.05			36,428.05	$14,000.00		22,428.05
Pay Department:							
Expenses Brownsville court of inquiry		$22,500.00		22,500.00	22,500.00		
Medical Department:							
Artificial limbs		132,000.00		132,000.00	120,196.20		11,803.80
Appliances for disabled soldiers		2,000.00		2,000.00	1,300.00		700.00
Trusses for disabled soldiers		6,030.61		6,030.61	3,830.61		2,200.00
Army Medical Museum and library building	3,271.00			3,271.00			3,271.00
Engineer Department:							
Survey of Northern and Northwestern Lakes	128,632.72			128,632.72	127,597.64		1,035.08
Survey of Fort Caswell Military Reservation, N. C.	750.00			750.00			750.00
Expenses California Débris Commission		15,000.00		15,000.00	12,000.00		3,000.00
Bridge across Mississippi River at Fort Snelling, Minn.		20,000.00		20,000.00	15,320.22		4,679.78
Maps, War Department		5,000.00		5,000.00	3,712.00		1,288.00
Prevention of deposits, harbor of New York		85,260.00		85,260.00	85,260.00		
National Waterways Commission	*50,000.00			50,000.00	50,000.00		
Commission on waterway connecting Chesapeake and Delaware bays	254.09			254.09			254.09
Permanent International Commission of Congresses of Navigation		3,000.00		3,000.00	2,400.00		600.00
Raising U. S. S. Maine, etc., harbor of Habana, Cuba		100,000.00		100,000.00			100,000.00
Preservation of Niagara Falls	28,596.02			28,596.02	1,459.54		27,136.48
International Waterways Commission	3,500.41	20,000.00		23,500.41	20,529.90		2,970.51
Board of Managers, National Home for Disabled Volunteer Soldiers:							
National Home for Disabled Volunteer Soldiers		3,841,800.00		3,841,800.00	3,838,099.22		3,700.78
National Home for Disabled Volunteer Soldiers, buildings and appurtenances	518,820.15	20,000.00		538,820.15	472,259.96		66,560.19
National Sanitarium for Disabled Volunteer Soldiers, Hot Springs, S. Dak., buildings and appurtenances	13,028.07			13,028.07	6,921.29		6,106.78
National Sanitarium for Disabled Volunteer Soldiers, Hot Springs, S. Dak.		165,000.00		165,000.00	164,803.45		196.55
State or territorial homes for disabled soldiers and sailors		1,150,000.00		1,150,000.00	944,422.55		205,577.45
Total miscellaneous objects	843,319.50	6,220,097.97	$1.75	7,063,419.22	6,434,453.53		628,965.69

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Less amount transferred from War to Treasury ledger	50,000.00			50,000.00	50,000.00		
	793,319.50	6,220,097.97	1.75	7,013,419.22	6,384,453.53		628,965.69
Repayments in excess of payments					1.75		
Actual expenditures					6,384,451.78		

NOTE.—The foregoing transfer was made to adjust error in certifying to the War Department the sum of $50,000 appropriated by section 7 of the river and harbor act approved March 3, 1909, for payment of expenses of the National Waterways Commission.

War claims and relief acts.							
Arrears of pay, bounty, etc		400,000.00		400,000.00	399,352.15		647.85
Pay, etc., of the army, war with Spain		50,000.00		50,000.00	10,377.63		39,622.37
Extra pay to volunteers, war with Spain		10,508.47		10,508.47	10,508.47		
Extra pay to Regular Army, war with Spain		657.33		657.33	657.33		
Horses and other property lost in military service		127.00		127.00	127.00		
Extra pay to officers and men who served in the Mexican war		279.00		279.00	279.00		
Claims of officers and men of the army for destruction of private property		4,247.04		4,247.04	4,247.04		
Reimbursement to States and Territories for expenses in raising troops for war with Spain		218,796.86		218,796.86	218,796.86		
Expenses of Rogue River Indian war		15.81		15.81	15.81		
Collecting, drilling, and organizing volunteers		65.55		65.55	.09	$65.46	
Payment of claim of Roman Catholic Church, of Zamboanga, P.I.		5,543.68		5,543.68			5,543.68
Payment to Hon. John H. Bankhead for services on the Inland Waterways Commission		1,875.00		1,875.00	1,875.00		
Pay, transportation, services, and supplies of Oregon and Washington volunteers, 1855–56		93.44		93.44	93.44		
Trust fund:							
Effects of Hans K. T. Jensen, deceased, U. S. Army	45.00			45.00			45.00
Effects of Alphonse Strebler, deceased, U. S. Army	50.15			50.15			50.15
Relief of—							
Charles Lennig & Co	1,702.20			1,702.20	1,702.20		
The Richmond Light Infantry Blues of Virginia	1,788.48			1,788.48	1,788.48		
William G. Hardy, U. S. Army	597.38			597.38	597.38		
Charles S. Blood	563.65			563.65	563.65		
W. M. Hall	35.80			35.80	35.80		
Payment to James E. Howard	104.16			104.16	104.16		
Reimbursement to Maj. John E. Baxter, U. S. Army	19.60			19.60	19.60		
Judgment, Court of Claims, William Kiskadden		9,702.00		9,702.00	9,702.00		
Preventing and suppressing Indian hostilities			275.53	275.53		275.53	
Protection of emigrants on the overland route			12.02	12.02		12.02	
Forage for officers' horses, 1877 and prior years			46.84	46.84		46.84	
Relief of persons for damages by explosion at Frankford Arsenal, Pa.	1,848.55			1,848.55	1,804.06		44.49
Payment of claims of certain religious orders of the Roman Catholic Church, Philippine Islands		49,372.50		49,372.50			49,372.50
Relief of Merritt & Chapman Derrick and Wrecking Co		1,800.00		1,800.00			1,800.00
Relief of Maj. Pierre C. Stevens, U. S. Army		4,000.00		4,000.00	4,000.00		
Judgments, Court of Claims (war)	24,953.55	253,695.40		278,648.95	256,528.42	8.33	22,112.20

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Statement of the appropriation of the preceding fiscal year (1910) for the Department of War, as required by the act of May 1, 1820 (R. S., sec. 228), showing the amount appropriated under each specific head of appropriation, the amount expended under each head, and the balance which, on the 30th day of June, 1910, remained unexpended, together with the amount covered into the surplus fund of the Treasury which is no longer required for expenditure—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MISCELLANEOUS—Continued.							
War claims and relief acts—Continued.							
Judgments, United States courts (war)		$3,046.41		$3,046.41	$3,046.41		
Claims for damages to property in Virginia, war with Spain	$378.00			378.00			$378.00
Payments for damages to private property by gun firing	56.72			56.72			56.72
Claims reported by the Court of Claims under the Bowman and Tucker acts	3,615.34			3,615.34	1,851.00		1,764.34
Relief of persons for damages by fire at Rock Island Arsenal, Ill	13.35			13.35			13.35
Payment to volunteers, Cayuse Indian war of 1847 and 1848 in Oregon	1,500.00			1,500.00	391.17		1,108.83
Relief of—							
Walter M. Keefe	427.75			427.75	427.75		
W. H. Blurock	185.00			185.00	185.00		
The Hastings Steamboat Co	286.35			286.35	286.35		
Sufferers from earthquake and conflagration on Pacific coast	602,865.01			602,865.01	3,940.56		598,924.45
Sufferers from the cyclone in certain Southern States	5,726.76			5,726.76	584.63		5,142.13
Total war claims and relief acts	646,762.80	1,013,825.49	$334.39	1,660,922.68	933,888.44	$408.18	726,626.06
Repayments in excess of payments					334.39		
Actual expenditures					933,554.05		
Summary, miscellaneous.							
National cemeteries	253,163.82	317,530.00		570,693.82	346,074.82		224,619.00
Miscellaneous objects	793,319.50	6,220,097.97		7,013,417.47	6,384,451.78		628,965.69
War claims and relief acts	646,762.80	1,013,825.49		1,660,588.29	933,554.05	408.18	726,626.06
Total miscellaneous	1,693,246.12	7,551,453.46		9,244,699.58	7,664,080.65	408.18	1,580,210.75
RECAPITULATION.							
Civil establishment	654.06	2,014,868.00		2,015,522.06	1,977,904.83		37,617.23
Military establishment	4,691,888.82	108,520,238.73		113,212,127.55	97,036,949.42	39,943.35	16,135,234.78
Public works	66,738,595.85	8,331,911.29		75,070,507.14	42,628,839.97	3,817.61	32,437,849.56
Miscellaneous	1,693,246.12	7,551,453.46		9,244,699.58	7,664,080.65	408.18	1,580,210.75
Total	73,124,384.85	126,418,471.48		199,542,856.33	149,307,774.87	44,169.14	50,190,912.32

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APPENDIX B.

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1909 (1909), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1909, and the balances remaining in the Treasury subject to requisition July 1, 1910.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
CIVIL ESTABLISHMENT.							
Secretary's office:							
Salaries—							
Office of Secretary of War	$3,248.61		$203.35	$3,451.96			$3,451.96
Adjutant-General's Office	12,556.04		728.56	13,284.60			13,284.60
Office of Inspector-General	30.00		3.34	33.34			33.34
Office of Judge-Advocate-General	148.34		12.50	160.84			160.84
Signal office	373.34		42.66	416.00			416.00
Office of Quartermaster-General	3,163.76		447.89	3,611.65			3,611.65
Office of Commissary-General	476.70		138.02	614.72			614.72
Office of Surgeon-General	1,667.41		307.39	1,974.80			1,974.80
Office of Paymaster-General	738.84		125.59	864.43			864.43
Office of Chief of Ordnance	1,290.57		131.67	1,422.24			1,422.24
Office of Chief of Engineers	790.89		65.00	855.89			855.89
Bureau of Insular Affairs	1,016.61		11.11	1,027.72			1,027.72
Contingent expenses, War Department	1,942.02			1,942.02	$1,806.60		135.42
Stationery, War Department	997.08			997.08	891.65		105.43
Postage to postal-union countries, War Department	75.00			75.00			75.00
Engineer Department:							
Salaries of employees, public buildings and grounds			1,015.41	1,015.41			1,015.41
Contingent expenses, public buildings and grounds			24.03	24.03			24.03
Total civil establishment	28,515.21		3,256.52	31,771.73	2,698.25		29,073.48
Less payments			2,698.25				
Repayments in excess of payments			558.27				
MILITARY ESTABLISHMENT.							
Support of the army.							
Secretary's office:							
Contingencies of the army	1,215.16		3,145.14	4,360.30			4,360.30
Office of the Chief of Staff:							
Contingencies, military information division, General Staff Corps	280.00		791.79	1,071.79			1,071.79
Army War College	479.00			479.00	244.39		234.61
The Adjutant-General's Department:							
Contingencies, headquarters of military departments	595.00		319.95	914.95			914.95

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Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1909 (1909), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1909, and the balances remaining in the Treasury subject to requisition July 1, 1910—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT—Continued.							
***Support of the army*—Continued.**							
Under the Chief of Coast Artillery:							
Coast Artillery School, Fort Monroe, Va			$13.12	$13.12			$13.12
Chief Signal Officer:							
Signal Service of the Army	$42,952.68			42,952.68	$22,480.25		20,472.43
Pay Department:							
Pay, etc., of the army	2,073,665.91			2,073,665.91	588,796.19		1,484,869.72
Mileage to officers and contract surgeons	88,639.73			88,639.73	4,066.76		84,573.97
Subsistence Department:							
Subsistence of the army	36,245.04	$290,490.00		326,735.04	236,866.77		89,868.27
Quartermaster's Department:							
Regular supplies	954,172.33			954,172.33	411,042.42		543,129.91
Equipment of officers' schools, military posts	3,182.76		3,574.96	6,757.72			6,757.72
Incidental expenses	33,771.39		65,592.57	99,363.96			99,363.96
Horses for cavalry, artillery, and engineers	31,948.81		9,476.55	41,425.36			41,425.36
Barracks and quarters	1,616,917.83			1,616,917.83	1,239,839.39		377,078.44
Military post exchanges	301,981.72			301,981.72	274,758.35		27,223.37
Transportation of the army and its supplies	1,035,187.18			1,035,187.18	1,022,867.27		12,319.91
Roads, walks, wharves, and drainage	201,352.94			201,352.94	182,702.25		18,650.69
Water and sewers at military posts	783,318.19			783,318.19	285,548.45		497,769.74
Clothing and camp and garrison equipage	511,046.13		22,735.17	533,781.30			533,781.30
Construction and repair of hospitals	122,974.29			122,974.29	109,741.49		13,232.80
Quarters for hospital stewards	6,646.05			6,646.05	5,792.94		853.11
Shooting galleries and ranges	12,790.02		1,798.16	14,588.18			14,588.18
Maintenance, Army War College	312.22		430.22	742.44			742.44
Medical Department:							
Medical and hospital department	113,484.54			113,484.54	105,102.22		8,382.32
Replacing medical supplies			1.69	1.69			1.69
Army Medical Museum	992.85			992.85	900.33		92.52
Library, Surgeon-General's Office	2,980.77			2,980.77	2,819.88		160.89
Engineer Department:							
Engineer depots			24.83	24.83			24.83
Engineer School, Washington, D. C			213.51	213.51			213.51
Engineer equipment of troops	16,759.44			16,759.44	14,912.85		1,846.59
Civilian assistants to engineer officers			49.69	49.69			49.69
Ordnance Department:							
Ordnance service	9,816.62			9,816.62	5,264.35		4,552.27

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Ordnance stores—ammunition	720.36		162.97	883.33			883.33
Small arms target practice	7,781.08			7,781.08	3,844.63		3,936.45
Manufacture of arms	1,148.54		180.91	1,329.45			1,329.45
Ordnance stores and supplies	17,644.30			17,644.30	14,842.69		2,801.61
National trophy and medals for rifle contests	28.36			28.36	6.61		21.75
Fire control in field batteries	150,634.68			150,634.68	37,733.51		112,901.17
Replacing ordnance and ordnance stores	1,121,284.04			1,121,284.04	560,439.80		560,844.24
Total support of the army	9,302,949.96	290,490.00	108,511.23	9,701,951.19	5,130,612.79		4,571,338.40
Repayments in excess of payments					108,511.23		
Actual expenditures					5,022,101.56		
Military Academy.							
Pay of Military Academy	63,796.26			63,796.26	4,922.54		58,873.72
Current and ordinary expenses, Military Academy		427.69	2,442.05	2,869.74			2,869.74
Miscellaneous items and incidental expenses, Military Academy	3.71		346.95	350.66			350.66
Buildings and grounds, Military Academy			743.84	743.84			743.84
Total Military Academy	63,799.97	427.69	3,532.84	67,760.50	4,922.54		62,837.96
Repayments in excess of payments					3,532.84		
Actual expenditures					1,389.70		
Organized militia.							
Equipment of coast artillery, organized militia	9,610.00			9,610.00	9,610.00		
Arms, uniforms, equipments, etc., organized militia		993,169.94		993,169.94	993,164.54		5.40
Total organized militia	9,610.00	993,169.94		1,002,779.94	1,002,774.54		5.40
Summary military establishment.							
Support of the army	9,302,949.96	290,490.00		9,593,439.96	5,022,101.56		4,571,338.40
Military Academy	63,799.97	427.69		64,227.66	1,389.70		62,837.96
Organized militia	9,610.00	993,169.94		1,002,779.94	1,002,774.54		5.40
Total military establishment	9,376,359.93	1,284,087.63		10,660,447.56	6,026,265.80		4,634,181.76
PUBLIC WORKS—MILITARY.							
Arsenals.							
Ordnance Department:							
Rock Island power plant, Rock Island, Ill			906.71	906.71			906.71
Testing machine			303.05	303.05			303.05
Repairs of arsenals	41,268.97			41,268.97	34,477.58		6,791.39
Total arsenals	41,268.97		1,209.76	42,478.73	34,477.58		8,001.15
Repayments in excess of payments					1,209.76		
Actual expenditures					33,267.82		

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Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1909 (1909), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1909, and the balances remaining in the Treasury subject to requisition July 1, 1910—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—MILITARY—Continued.							
Summary public works—military.							
Arsenals	$41,268.97			$41,268.97	$33,267.82		$8,001.15
Total public works, military	41,268.97			41,268.97	33,267.82		8,001.15
PUBLIC WORKS—CIVIL.							
Buildings and grounds in and around Washington.							
Engineer Department:							
Improvement and care of public grounds			$842.07	842.07			842.07
Improvement and care of public grounds, District of Columbia	3.80		3,158.15	3,161.95			3,161.95
Repairs, fuel, etc., Executive Mansion			2,424.57	2,424.57			2,424.57
Lighting, etc., Executive Mansion, etc			3,336.79	3,336.79			3,336.79
Lighting public grounds, District of Columbia			58.01	58.01			58.01
Telegraph to connect the Capitol with the departments and Government Printing Office			64.15	64.15			64.15
Repairs to building where Abraham Lincoln died	100.00		85.56	185.56			185.56
Care and maintenance of Washington Monument			181.11	181.11			181.11
Total buildings and grounds in and around Washington	103.80		10,150.41	10,254.21			10,254.21
Rivers and harbors.							
Engineer Department:							
Maintenance of South Pass Channel, Mississippi River	14.11		149.36	163.47			163.47
Gauging waters of Mississippi River and its tributaries	1,288.71			1,288.71	1,025.34		263.37
Removing obstructions in Mississippi River	3,352.85			3,352.85	774.06		2,578.79
Operating snag boats on the Ohio River	13,500.00		1,343.33	14,843.33			14,843.33
Total rivers and harbors	18,155.67		1,492.69	19,648.36	1,799.40		17,848.96
Repayments in excess of payments					1,492.69		
Actual expenditures					306.71		
Summary public works—civil.							
Buildings and grounds in and around Washington	103.80		10,150.41	10,254.21			10,254.21
Rivers and harbors	18,155.67			18,155.67	306.71		17,848.96

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Total public works—civil	18,259.47		10,150.41	28,409.88	306.71		28,103.17
Less payments			306.71				
Repayments in excess of payments			9,843.70				
Summary public works.							
Public works:							
Military	41,268.97			41,268.97	33,267.82		8,001.15
Civil	18,259.47		9,843.70	28,103.17			28,103.17
Total public works	59,528.44		9,843.70	69,372.14	33,267.82		36,104.32
Repayments in excess of payments					9,843.70		
Actual expenditures					23,424.12		
MISCELLANEOUS.							
National cemeteries.							
Quartermaster's Department:							
National cemetery, Knoxville, Tenn	3,749.22			3,749.22	1,597.91		2,151.31
National cemeteries	7,675.93			7,675.93	4,573.84		3,102.09
Pay of superintendents of national cemeteries	.84		214.67	215.51			215.51
Headstones for graves of soldiers	2,146.34			2,146.34	592.24		1,554.10
Burial of indigent soldiers	1,690.00			1,690.00	718.00		972.00
Repairing roads to national cemeteries	4,082.00			4,082.00	3,076.10		1,005.90
Road to national cemetery, Mound City, Ill	25.02			25.02	25.00		.02
Lincoln's Gettysburg address in national cemeteries	3,000.00			3,000.00	2,654.66		345.34
Memorial tablet, national cemetery, Marietta, Ga	68.00			68.00			68.00
Arlington National Cemetery, Va	5,500.00			5,500.00	5,471.20		28.80
Antietam battlefield preservation			4.89	4.89			4.89
Bringing home the remains of officers and soldiers who die abroad	4,690.92		470.20	5,161.12			5,161.12
Bringing home the remains of civil employees of the army who die abroad and soldiers who die on transports	759.94			759.94	624.63		135.31
Total national cemeteries	33,388.21		689.76	34,077.97	19,333.58		14,744.39
Repayments in excess of payments					689.76		
Actual expenditures					18,643.82		
Miscellaneous objects.							
Medical Department:							
Artificial limbs	48,703.50			48,703.50	2,405.99		46,297.51
Appliances for disabled soldiers	600.00			600.00	71.06		528.94
Engineer Department:							
Expenses California Débris Commission	300.00			300.00	250.00		50.00
Maps, War Department	1,277.65		17.47	1,295.12			1,295.12
Prevention of deposits, harbor of New York			24.03	24.03			24.03
Permanent International Commission of Congresses of Navigation			319.55	319.55			319.55

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Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1909 (1909), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1909, and the balances remaining in the Treasury subject to requisition July 1, 1910—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MISCELLANEOUS—Continued.							
Miscellaneous objects—Continued.							
Board of Managers, National Home for Disabled Volunteer Soldiers:							
National Home for Disabled Volunteer Soldiers	$961.23		$227,526.33	$228,487.56			$228,487.56
National Sanitarium for Disabled Volunteer Soldiers, Hot Springs, S. Dak	56.65		8,198.96	8,255.61			8,255.61
State or territorial homes for disabled soldiers and sailors	251,670.34	$37,440.41		289,110.75	$289,110.75		
Total miscellaneous objects	303,569.37	37,440.41	236,086.34	577,096.12	291,837.80		285,258.32
Repayments in excess of payments					236,086.34		
Actual expenditures					55,751.46		
War claims and relief acts.							
Arrears of pay bounty, etc.	21,998.44			21,998.44	7,922.86		14,075.58
Pay, etc., of the army, war with Spain	30,891.05			30,891.05	449.48		30,441.57
Total war claims and relief acts	52,889.49			52,889.49	8,372.34		44,517.15
Summary, miscellaneous.							
National cemeteries	33,388.21			33,388.21	18,643.82		14,744.39
Miscellaneous objects	303,569.37	37,440.41		341,009.78	55,751.46		285,258.32
War claims and relief acts	52,889.49			52,889.49	8,372.34		44,517.15
Total miscellaneous	389,847.07	37,440.41		427,287.48	82,767.62		344,519.86
RECAPITULATION.							
Civil establishment	28,515.21		558.27	29,073.48			29,073.48
Military establishment	9,376,369.93	1,284,087.63		10,660,447.56	6,026,265.80		4,634,181.76
Public works	59,528.44			59,528.44	23,424.12		36,104.32
Miscellaneous	389,847.07	37,440.41		427,287.48	82,767.62		344,519.86
Total	9,854,250.65	1,321,528.04	558.27	11,176,336.96	6,132,457.54		5,043,879.42
Less repayments in excess of payments					558.27		
Actual expenditures					6,131,899.27		

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APPENDIX C.

Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1908 (1908), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1908, and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110).

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
CIVIL ESTABLISHMENT.							
Secretary's office:							
Salaries—							
Office of Secretary of War	$3,664.59			$3,664.59		$3,664.59	
Adjutant-General's office	28,254.51			28,254.51	$101.11	28,153.40	
Office of Judge-Advocate-General	735.78			735.78		735.78	
Signal Office	413.23			413.23		413.23	
Office of Quartermaster-General	7,441.22			7,441.22		7,441.22	
Office of Commissary-General	1,006.85			1,006.85		1,006.85	
Office of Surgeon-General	2,894.09			2,894.09		2,894.09	
Office of Paymaster-General	646.45			646.45		646.45	
Office of Chief of Ordnance	1,243.29			1,243.29		1,243.29	
Office of Chief of Engineers	841.14			841.14	18.33	822.81	
Bureau of Insular Affairs	4,454.56			4,454.56		4,454.56	
Contingent expenses, War Department	125.15			125.15		125.15	
Stationery, War Department	2,499.26			2,499.26		2,499.26	
Postage to postal-union countries, War Department	165.00			165.00		165.00	
Engineer Department:							
Salaries of employees, public buildings and grounds	87.74			87.74		87.74	
Contingent expenses, public buildings and grounds	16.99			16.99		16.99	
Total civil establishment	54,489.85			54,489.85	119.44	54,370.41	
MILITARY ESTABLISHMENT.							
Support of the army.							
Secretary's office:							
Contingencies of the army	4,478.04		$152.63	4,630.67		4,630.67	
Under the Chief of Coast Artillery:							
School of submarine defense, Fort Totten, N. Y.	2.35			2.35		2.35	
Office of the Chief of Staff:							
Army War College	28.54			28.54		28.54	
Contingencies, military information division, General Staff Corps	1,031.49		37.82	1,069.31		1,069.31	
United States service schools	4.44			4.44		4.44	
The Adjutant-General's Department:							
Contingencies, headquarters of military departments	816.15			816.15		816.15	

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Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1908 (1908), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1908, and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT—Continued.							
***Support of the army*—Continued.**							
Chief Signal Officer:							
Signal service of the army	$711.32			$711.32	$660.32	$51.00	
Pay Department:							
Pay, etc., of the army	543,505.82			543,505.82	51,987.83	491,517.99	
Mileage to officers and contract surgeons	3,837.87		$2,007.96	5,845.83		5,845.83	
Subsistence Department:							
Subsistence of the army	249,518.09		1,860.14	251,378.23		251,378.23	
Quartermaster's Department:							
Regular supplies	322,047.94			322,047.94	10,606.08	311,441.86	
Equipment of officers' schools, military posts	99.63		1.76	101.39		101.39	
Incidental expenses	41,965.40		3,830.11	45,795.51		45,795.51	
Horses for cavalry, artillery, and engineers	17,912.80		221.07	18,133.87		18,133.87	
Barracks and quarters	164,087.16			164,087.16	128,290.84	35,796.32	
Military post exchanges	15,259.52			15,259.52	91.33	15,168.19	
Transportation of the army and its supplies	100,328.37			100,328.37	73,582.07		$26,746.30
Clothing and camp and garrison equipage	239,047.58		11,376.59	250,424.17		250,424.17	
Construction and repair of hospitals	215.19		298.54	513.73		513.73	
Quarters for hospital stewards	.78		40.75	41.53		41.53	
Shooting galleries and ranges	2,933.92		41.13	2,975.05		2,975.05	
Maintenance, Army War College	169.44		4.87	174.31		174.31	
Medical Department:							
Medical and hospital department	627.63			627.63	75.35	552.28	
Replacing medical supplies	33.11			33.11		33.11	
Army Medical Museum	407.38			407.38		407.38	
Library, Surgeon-General's office	524.21			524.21		524.21	
Engineer Department:							
Engineer depots	3.11			3.11		3.11	
Engineer School, Washington, D. C.	193.21			193.21		193.21	
Engineer equipment of troops	378.61			378.61	209.01	169.60	
Civilian assistants to engineer officers	648.11			648.11		648.11	
Ordnance Department:							
Ordnance service	5,692.14			5,692.14	143.91	5,548.23	
Manufacture of arms	2,685.61		3.03	2,688.64		2,688.64	
National trophy and medals for rifle contests	907.45			907.45		907.45	
Fire control in field batteries	421.05		247.31	668.36		668.36	

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Replacing ordnance and ordnance stores	8,591.13	$1.18		8,592.31	7,947.31	645.00	
Total support of the army	1,729,114.59	1.18	20,123.71	1,749,239.48	273,594.05	1,448,899.13	26,746.30
Repayments in excess of payments					20,123.71		
Actual expenditures					253,470.34		
Military Academy.							
Pay of Military Academy	108,566.81		170.12	108,736.93		108,736.93	
Current and ordinary expenses, Military Academy	5,578.10			5,578.10		4,471.20	1,106.90
Miscellaneous items and incidental expenses, Military Academy	197.31			197.31		197.31	
Buildings and grounds, Military Academy	6,067.28			6,067.28		6,067.28	
Total Military Academy	120,409.50		170.12	120,579.62		119,472.72	1,106.90
Organized militia.							
Encampment and maneuvers, organized militia	111,269.54		5,226.84	116,496.38		116,496.38	
Arms, uniforms, equipments, etc., organized militia		77,693.61		77,693.61	77,693.61		
Total organized militia	111,269.54	77,693.61	5,226.84	194,189.99	77,693.61	116,496.38	
Repayments in excess of payments					5,226.84		
Actual expenditures					72,466,77		
Summary military establishment.							
Support of the army	1,729,114.59	1.18		1,729,115.77	253,470.34	1,448,899.13	26,746.30
Military Academy	120,409.50		170.12	120,579.62		119,472.72	1,106.90
Organized militia	111,269.54	77,693.61		188,963.15	72,466.77	116,496.38	
Total military establishment	1,960,793.63	77,694.79	170.12	2,038,658.54	325,937.11	1,684,868.23	27,853.20
Repayments in excess of payments					170.12		
Actual expenditures					325,766.99		
PUBLIC WORKS—MILITARY.							
Arsenals.							
Ordnance Department:							
Rock Island power plant, Rock Island, Ill	1,298.81			1,298.81		1,298.81	
Rock Island Bridge, Rock Island, Ill	1.87			1.87		1.87	
Testing machine	1,026.41			1,026.41	1.63	1,024.78	
Repair of arsenals	4,172.85		46.89	4,219.74		4,219.74	
Total arsenals	6,499.94		46.89	6,546.83	1.63	6,545.20	
Less payments			1.63				
Repayments in excess of payments			45.26				

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Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1908 (1908), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1908, and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
PUBLIC WORKS—MILITARY—Continued.							
Military posts, etc.							
Quartermaster's Department:							
Sewerage system, Fort Monroe, Va.	$37.92			$37.92		$37.92	
Total military posts	37.92			37.92		37.92	
Summary public works—military.							
Arsenals	6,499.94		$45.26	6,545.20		6,545.20	
Military posts	37.92			37.92		37.92	
Total public works, military	6,537.86		45.26	6,583.12		6,583.12	
PUBLIC WORKS—CIVIL.							
Buildings and grounds in and around Washington.							
Engineer Department:							
Improvement and care of public grounds	620.13			620.13		620.13	
Improvement and care of public grounds, District of Columbia	3,568.39			3,568.39		3,568.39	
Repairs, fuel, etc., Executive Mansion	113.77			113.77		113.77	
Lighting, etc., Executive Mansion, etc	2,409.41			2,409.41		2,409.41	
Lighting public grounds, District of Columbia	899.08			899.08		899.08	
Telegraph to connect the Capitol with the departments and Government Printing Office	9.67			9.67		9.67	
Repairs to building where Abraham Lincoln died	60.42			60.42		60.42	
Care and maintenance of Washington Monument	37.96			37.96		37.96	
Improvement, birthplace of Washington, Wakefield, Va.	135.71			135.71		135.71	
Total buildings and grounds in and around Washington	7,854.54			7,854.54		7,854.54	
Rivers and harbors.							
Engineer Department:							
Maintenance of South Pass Channel, Mississippi River	10,400.00			10,400.00		10,400.00	
Gauging waters of Mississippi River and its tributaries	1,551.25			1,551.25	$3.25	1,548.00	
Removing obstructions in Mississippi River	278.33			278.33		278.33	
Operating snag boats on the Ohio River	12,819.12			12,819.12		12,819.12	

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Total rivers and harbors	25,048.70			25,048.70	3.25	25,045.45	
Summary public works—civil.							
Buildings and grounds in and around Washington	7,854.54			7,854.54		7,854.54	
Rivers and harbors	25,048.70			25,048.70	3.25	25,045.45	
Total public works, civil	32,903.24			32,903.24	3.25	32,899.99	
Summary public works.							
Public works:							
Military	6,537.86		45.26	6,583.12		6,583.12	
Civil	32,903.24			32,903.24	3.25	32,899.99	
Total public works	39,441.10		45.26	39,486.36	3.25	39,483.11	
Less payments			3.25				
Repayments in excess of payments			42.01				
MISCELLANEOUS.							
National cemeteries.							
Quartermaster's Department:							
National cemetery, Knoxville, Tenn	774.95			774.95		774.95	
National cemetery, Greenville, Tenn	6.90		300.83	307.73		307.73	
National cemeteries	5,833.51		145.33	5,978.84		5,978.84	
Pay of superintendents of national cemeteries	118.34			118.34		118.34	
Headstones for graves of soldiers	.03	$2,119.71		2,119.74	2,119.71	.03	
Burial of indigent soldiers	500.00		138.00	638.00		638.00	
Repairing roads to national cemeteries	1,883.39			1,883.39		1,883.39	
Road to national cemetery—							
Vicksburg, Miss	214.73			214.73		214.73	
Pensacola, Fla	940.32			940.32		940.32	
Port Hudson, La	615.28		12.50	627.78		627.78	
Keokuk, Iowa	194.28			194.28		194.28	
Arlington National Cemetery, Va	46.62			46.62		46.62	
Antietam battlefield preservation	25.93			25.93		25.93	
Bringing home the remains of officers and soldiers who die abroad	1,380.01		101.73	1,481.74		1,481.74	
Bringing home the remains of civil employees of the army who die abroad and soldiers who die on transports	277.54			277.54	11.92	265.62	
Total national cemeteries	12,811.82	2,119.71	698.39	15,629.93	2,131.63	13,498.30	
Repayments in excess of payments					698.39		
Actual expenditures					1,433.24		
Miscellaneous objects.							
Medical Department:							
Artificial limbs	19,783.56			19,783.56	89.09	19,694.47	
Appliances for disabled soldiers	686.99			686.99		686.99	

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Statement of balances of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1908 (1908), showing the amounts drawn by requisition upon the Treasury during the fiscal year ending June 30, 1910 (1910), in settlement of outstanding liabilities created during the fiscal year 1908, and the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110)—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MISCELLANEOUS—Continued.							
Miscellaneous objects—Continued.							
Engineer Department:							
Expenses, California Débris Commission	$300.00			$300.00		$300.00	
Maps, War Department	2,132.93			2,132.93	$1,751.00	381.93	
Prevention of deposits, harbor of New York	56.77			56.77		56.77	
Permanent International Commission of Congresses of Navigation	18.95			18.95		18.95	
Board of Managers, National Home for Disabled Volunteer Soldiers:							
National Home for Disabled Volunteer Soldiers	292,664.49			292,664.49	1,576.64	291,087.85	
National Sanitarium for Disabled Volunteer Soldiers, Hot Springs, S. Dak.	10,620.57			10,620.57		10,620.57	
State or territorial homes for disabled soldiers and sailors	31,842.14			31,842.14		31,842.14	
Total miscellaneous objects	358,106.40			358,106.40	3,416.73	354,689.67	
War claims and relief acts							
Arrears of pay, bounty, etc	66,378.54			66,378.54		66,378.54	
Pay, etc., of the army, war with Spain	111,434.82		$2.40	111,437.22		111,437.22	
Total war claims and relief acts	177,813.36		2.40	177,815.76		177,815.76	
Summary miscellaneous.							
National cemeteries	12,811.83	$2,119.71		14,931.54	1,433.24	13,498.30	
Miscellaneous objects	358,106.40			358,106.40	3,416.73	354,689.67	
War claims and relief acts	177,813.36		2.40	177,815.76		177,815.76	
Total miscellaneous	548,731.59	2,119.71	2.40	550,853.70	4,849.97	546,003.73	
Repayments in excess of payments					2.40		
Actual expenditures					4,847.57		
RECAPITULATION.							
Civil establishment	54,489.85			54,489.85	119.44	54,370.41	
Military establishment	1,960,793.63	77,694.79		2,038,488.42	325,766.99	1,684,868.23	$27,853.20
Public works	39,441.10		42.01	39,483.11		39,483.11	
Miscellaneous	548,731.59	2,119.71		550,851.30	4,847.57	546,003.73	
Total	2,603,456.17	79,814.50	42.01	2,683,312.68	330,734.00	2,324,725.48	27,853.20
Less repayments in excess of payments					42.01		
Actual expenditures					330,691.99		

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APPENDIX D.

Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1907, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1910 (1910), the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1910.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT.							
Support of the army.							
Secretary's office:							
Contingencies of the army—							
1898			$246.05	$246.05		$246.05	
1899			1,353.28	1,353.28		1,353.28	
January 1, 1899			11,187.72	11,187.72		11,187.72	
1900			16,986.80	16,986.80		16,986.80	
1901			1,672.06	1,672.06		1,672.06	
Office of the Chief of Staff:							
Contingencies, military information division, General Staff							
Corps, 1907			37.50	37.50		37.50	
Chief Signal Officer:							
Signal Service of the Army—							
Certified claims		$137.69		137.69	$137.69		
1907			95.25	95.25		95.25	
Pay Department:							
Expenses of recruiting—							
Certified claims		70.77		70.77	70.77		
1861			74.99	74.99		74.99	
1877 and prior years			4.49	4.49		4.49	
Pay, etc., of the army—							
Certified claims	$22.34	211,469.14		211,491.48	210,697.43		$794.05
1865			69.70	69.70		69.70	
1869			146.81	146.81		146.81	
1870-1871			9.59	9.59		9.59	
1871 and prior years			742.61	742.61		742.61	
1875			18.00	18.00		18.00	
1882			2.35	2.35		2.35	
1885			7.01	7.01		7.01	
1891			8.00	8.00		8.00	
1894			15.90	15.90		15.90	
1895			24.00	24.00		24.00	
1896			20.10	20.10		20.10	
1897			6.76	6.76		6.76	
1898			51.49	51.49		51.49	

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Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1907, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1910 (1910), the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1910—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT—Continued.							
Support of the army—Continued.							
Pay Department—Continued.							
Pay, etc., of the army—Continued.							
1899			$235.20	$235.20		$235.20	
1901			201.22	201.22		201.22	
1902			157.38	157.38		157.38	
1903			146.40	146.40		146.40	
1904			122.02	122.02		122.02	
1905			1,654.54	1,654.54		1,654.54	
1906		$806.08		806.08	$793.08	13.00	
1906 and prior years			139.67	139.67		139.67	
1907			7,040.63	7,040.63		7,040.63	
Pay, mileage, and general expenses, army, 1875			21.33	21.33		21.33	
Mileage to officers and contract surgeons—							
Certified claims		755.98		755.98	755.98		
1907			291.37	291.37		291.37	
Subsistence Department:							
Subsistence of officers			185.46	185.46		185.46	
Subsistence stores			109.84	109.84		109.84	
Subsistence of the army—							
Certified claims		170.31		170.31	170.31		
1871 and prior years			33.74	33.74		33.74	
1877 and prior years			480.94	480.94		480.94	
1877			65.80	65.80		65.80	
1900			44.74	44.74		44.74	
1906			15.43	15.43		15.43	
1907			93.22	93.22		93.22	
Quartermaster's Department:							
Regular supplies—							
Certified claims		253.75		253.75	252.79		$0.96
1877 and prior years			57.54	57.54		57.54	
1903			1.62	1.62		1.62	
1904		201.62	785.03	986.65		986.65	
1905	$1,535.60			1,535.60	97.25	1,438.35	
1906			30.62	30.62		30.62	
1907			1,718.75	1,718.75		1,718.75	

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Incidental expenses—							
Certified claims		76.90		76.90	76.90		
1877 and prior years			49.32	49.32		49.32	
1905		183.70		183.70	183.70		
1906			20.00	20.00		20.00	
1907			142.51	142.51		142.51	
Horses for cavalry, artillery, and engineers, certified claims		110.00		110.00	110.00		
Barracks and quarters—							
Certified claims		2,271.86		2,271.86	2,271.86		
1877 and prior years			361.61	361.61		361.61	
1904		200.00		200.00	200.00		
1905	100,324.04			100,324.04		100,324.04	
1907			7,070.82	7,070.82		7,070.82	
Military post exchanges, 1907			3.59	3.59		3.59	
Transportation of the army and its supplies—							
Certified claims		42,497.25		42,497.25	42,497.25		
1877 and prior years			15.40	15.40		15.40	
January 1, 1899			2,460.51	2,460.51		2,460.51	
1904		300.00		300.00		300.00	
1905	50,625.58			50,625.58	2,422.90	48,202.68	
1906			10.48	10.48		10.48	
1907			25,404.89	25,404.89		25,404.89	
Transportation of officers and their baggage, 1877 and prior years			172.94	172.94		172.94	
Clothing of officers' servants			11.91	11.91		11.91	
Clothing and camp and garrison equipage—							
Certified claims		601.53		601.53	601.53		
1905	5,963.08			5,963.08	1,282.23	4,680.85	
1906 and prior years			340.33	340.33		340.33	
1907	53,710.34		149.16	53,859.50		53,859.50	
Construction and repair of hospitals—							
Certified claims		25.00		25.00	25.00		
1907			1,131.02	1,131.02		1,131.02	
Shooting galleries and ranges, 1907			199.35	199.35		199.35	
Purchase of stoves			.65	.65		.65	
Ordnance Department:							
Manufacture of arms, certified claims		55.50		55.50	55.50		
Ordnance stores and supplies—							
1876 and prior years			29.51	29.51		29.51	
1907			4,706.06	4,706.06		4,706.06	
Replacing ordnance and ordnance stores, 1906-1907			16.55	16.55		16.55	
Total support of the army	212,180.98	260,187.08	88,709.56	561,077.62	262,702.17	297,580.44	795.01
Repayments in excess of payments					88,709.56		
Actual expenditures					173,992.61		
Military Academy.							
Pay of Military Academy, 1907		1,731.93		1,731.93	652.41	1,079.52	
Total Military Academy		1,731.93		1,731.93	652.41	1,079.52	

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Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1907, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1910 (1910), the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1910—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
MILITARY ESTABLISHMENT—Continued.							
Organized militia.							
Field artillery for organized militia, 1907			$249.70	$249.70		$249.70	
Encampment and maneuvers, organized militia, certified claims		$441.17		441.17	$441.17		
Encampment and maneuvers, organized militia, 1907			16.80	16.80		16.80	
Total organized militia		441.17	266.50	707.67	441.17	266.50	
Repayments in excess of payments					266.50		
Actual expenditures					174.67		
Summary military establishment.							
Support of the army	$212,180.98	260,187.08		472,368.06	173,992.61	297,580.44	$795.01
Military Academy		1,731.93		1,731.93	652.41	1,079.52	
Organized militia		441.17		441.17	174.67	266.50	
Total military establishment	212,180.98	262,360.18		474,541.16	174,819.69	298,926.46	795.01
PUBLIC WORKS—MILITARY.							
Arsenals.							
Ordnance Department:							
Repairs of arsenals, 1876			.37	.37		.37	
Total arsenals			.37	.37		.37	
Summary public works—military.							
Arsenals			.37	.37		.37	
Total public works, military			.37	.37		.37	
MISCELLANEOUS.							
National cemeteries.							
Quartermaster's Department:							
Headstones for graves of soldiers, certified claims		18.81		18.81	18.81		
Headstones for graves of soldiers, 1905	63.60			63.60		63.60	

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Burial of indigent soldiers, certified claims		40.00		40.00	40.00		
Total national cemeteries	63.60	58.81		122.41	58.81	63.60	
Miscellaneous objects.							
Secretary's office:							
Construction and maintenance of military and post-roads, bridges, and trails, Alaska, 1907	5.00			5.00		5.00	
Quartermaster's Department:							
Replacing military stores destroyed at San Francisco, Cal., 1906-7			21.29	21.29		21.29	
Engineer Department:							
Survey for military defenses			6.33	6.33		6.33	
Expenses California Débris Commission, certified claims		6.10		6.10	6.10		
Board of Managers, National Home for Disabled Volunteer Soldiers:							
National Home for Disabled Volunteer Soldiers, certified claims		459.48		459.48	459.48		
Total miscellaneous objects	5.00	465.58	27.62	498.20	465.58	32.62	
Repayments in excess of payments					27.62		
Actual expenditures					437.96		
War claims and relief acts.							
Pay, etc., of the army, war with Spain, January 1, 1899			8.33	8.33		8.33	
Pay, etc., of the army, war with Spain, 1907			1,865.93	1,865.93		1,865.93	
Pay of two and three year volunteers, 1871 and prior years			196.64	196.64		196.64	
Total war claims and relief acts			2,070.90	2,070.90		2,070.90	
Summary, miscellaneous.							
National cemeteries	63.60	58.81		122.41	58.81	63.60	
Miscellaneous objects	5.00	465.58		470.58	437.96	32.62	
War claims and relief acts			2,070.90	2,070.90		2,070.90	
Total miscellaneous	68.60	524.39	2,070.90	2,663.89	496.77	2,167.12	
Less payments			496.77				
Repayments in excess of payments			1,574.13				
RECAPITULATION.							
Military establishment	212,180.98	262,360.18		474,541.16	174,819.69	298,926.46	795.01
Miscellaneous	68.60	524.39	1,574.13	2,167.12		2,167.12	
Total	212,249.58	262,884.57	1,574.13	476,708.28	174,819.69	301,093.58	795.01
Repayments in excess of payments					1,574.13		
Actual expenditures					173,245.56		

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Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1907, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1910 (1910), the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1910—Continued.

SUMMARY.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
Civil establishment:							
Fiscal year 1910	$554.06	$2,014,868.00		$2,015,522.06	$1,977,904.83		$37,617.23
Fiscal year 1909	28,515.21		$558.27	29,073.48			29,073.48
Fiscal year 1908	54,489.85			54,489.85	119.44	$54,370.41	
Total civil establishment	83,659.12	2,014,868.00	558.27	2,099,085.39	1,978,024.27	54,370.41	66,690.71
Repayments in excess of payments					558.27		
Actual expenditures					1,977,466.00		
Military establishment:							
Support of the army—							
Fiscal year 1910	2,760,872.26	101,580,096.34		104,340,968.60	90,747,772.33	4,459.31	13,588,736.96
Fiscal year 1909	9,302,949.96	290,490.00		9,593,439.96	5,022,101.56		4,571,338.40
Fiscal year 1908	1,729,114.59	1.18		1,729,115.77	253,470.34	1,448,899.13	26,746.30
Fiscal year 1907 and prior years	212,180.98	260,187.08		472,368.06	173,992.61	297,580.44	795.01
Total support of the army	14,005,117.79	102,130,774.60		116,135,892.39	96,197,336.84	1,750,938.88	18,187,616.67
Military Academy—							
Fiscal year 1910	117,318.85	2,158,071.33		2,275,390.18	2,193,597.13		81,793.05
Fiscal year 1909	63,799.97	427.69		64,227.66	1,389.70		62,837.96
Fiscal year 1908	120,409.50		170.12	120,579.62		119,472.72	1,106.90
Fiscal year 1907 and prior years		1,731.93		1,731.93	652.41	1,079.52	
Total Military Academy	301,528.32	2,160,230.95	170.12	2,461,929.39	2,195,639.24	120,552.24	145,737.91
Repayments in excess of payments					170.12		
Actual expenditures					2,195,469.12		
Militia:							
Fiscal year 1910	1,813,697.71	4,782,071.06		6,595,768.77	4,095,579.96	35,484.04	2,464,704.77
Fiscal year 1909	9,610.00	993,169.94		1,002,779.94	1,002,774.54		5.40
Fiscal year 1908	111,269.54	77,693.61		188,963.15	72,466.77	116,496.38	
Fiscal year 1907 and prior years		441.17		441.17	174.67	266.50	
Total militia	1,934,577.25	5,853,375.78		7,787,953.03	5,170,995.94	152,246.92	2,464,710.17

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Total military establishment	16,241,223.36	110,144,381.33		126,385,604.69	103,563,801.90	2,023,738.04	20,798,064.75
Public works—military:							
Fortifications, fiscal year 1910	16,092,443.28	114,341.67		16,206,784.95	8,056,238.56	537.43	8,150,008.96
Arsenals—							
Fiscal year 1910	134,229.74	859,600.00		993,829.74	716,161.08	3,100.00	274,568.66
Fiscal year 1909	41,268.97			41,268.97	33,267.82		8,001.15
Fiscal year 1908	6,499.94		45.26	6,545.20		6,545.20	
Fiscal year 1907 and prior years			.37	.37		.37	
Total arsenals	181,998.65	859,600.00	45.63	1,041,644.28	749,428.90	9,645.57	282,569.81
Repayments in excess of payments					45.63		
Actual expenditures					749,383.27		
Military posts, etc.:							
Fiscal year 1910	4,066,673.96	4,398,914.16		8,465,588.12	4,082,845.71		4,382,742.41
Fiscal year 1908	37.92			37.92		37.92	
Total military posts, etc	4,066,711.88	4,398,914.16		8,465,626.04	4,082,845.71	37.92	4,382,742.41
Total public works—military	20,341,153.81	5,372,855.83		25,714,009.64	12,888,467.54	10,220.92	12,815,321.18
Public works—civil:							
Military parks, etc., fiscal year 1910	140,739.92	327,100.00		467,839.92	359,948.63		107,891.29
Buildings and grounds in and around Washington—							
Fiscal year 1910	45,052.25	263,290.00		308,342.25	305,639.08		2,703.17
Fiscal year 1909	103.80		10,150.41	10,254.21			10,254.21
Fiscal year 1908	7,854.54			7,854.54		7,854.54	
Total buildings and grounds in and around Washington	53,010.59	263,290.00	10,150.41	326,451.00	305,639.08	7,854.54	12,957.38
Repayments in excess of payments					10,150.41		
Actual expenditures					295,488.67		
Monuments, fiscal year 1910	312,156.88	75,500.00		387,656.88	83,954.40		303,702.48
Rivers and harbors—							
Fiscal year 1910	45,947,299.82	2,293,165.46		48,240,465.28	29,024,052.51	180.18	19,216,232.59
Fiscal year 1909	18,155.67			18,155.67	306.71		17,848.96
Fiscal year 1908	25,048.70			25,048.70	3.25	25,045.45	
Total river and harbors	45,990,504.19	2,293,165.46		48,283,669.65	29,024,362.47	25,225.63	19,234,081.55
Total public works—civil	46,496,411.58	2,959,055.46		49,455,467.04	29,763,754.17	33,080.17	19,658,632.70
Total public works	66,837,565.39	8,331,911.29		75,169,476.68	42,652,221.71	43,301.09	32,473,953.88

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Statement of appropriations made by Congress for the use of the War Department for the fiscal year ending June 30, 1907, and prior years, showing the amounts paid out of the Treasury by requisition or Treasury settlement during the fiscal year ending June 30, 1910 (1910), the amounts covered into the surplus fund of the Treasury by operation of law (18 Stat., 110), and the balances remaining in the Treasury on June 30, 1910—Continued.

SUMMARY—Continued.

Title of appropriation.	Balances July 1, 1909.	Appropriated July 1, 1909, to June 30, 1910.	Repayments July 1, 1909, to June 30, 1910.	Aggregate available.	Payments July 1, 1909, to June 30, 1910.	Carried to surplus fund June 30, 1910.	Balances June 30, 1910.
Miscellaneous:							
National cemeteries—							
Fiscal year 1910	$253,163.82	$317,530.00		$570,693.82	$346,074.82		$224,619.00
Fiscal year 1909	33,388.21			33,388.21	18,643.82		14,744.39
Fiscal year 1908	12,811.83	2,119.71		14,931.54	1,433.24	$13,498.30	
Fiscal year 1907 and prior years	63.60	58.81		122.41	58.81	63.60	
Total national cemeteries	299,427.45	319,708.52		619,135.98	366,210.69	13,561.90	239,363.39
Miscellaneous objects—							
Fiscal year 1910	793,319.50	6,220,097.97		7,013,417.47	6,384,451.78		628,965.69
Fiscal year 1909	303,569.37	37,440.41		341,009.78	55,751.46		285,258.32
Fiscal year 1908	358,106.40			358,106.40	3,416.73	354,689.67	
Fiscal year 1907 and prior years	5.00	465.58		470.58	437.96	32.62	
Total miscellaneous objects	1,455,000.27	6,258,003.96		7,713,004.23	6,444,057.93	354,722.29	914,224.01
War claims and relief acts—							
Fiscal year 1910	646,762.80	1,013,825.49		1,660,588.29	933,554.05	408.18	726,626.06
Fiscal year 1909	52,889.49			52,889.49	8,372.34		44,517.15
Fiscal year 1908	177,813.36		$2.40	177,815.76		177,815.76	
Fiscal year 1907 and prior years			2,070.90	2,070.90		2,070.90	
Total war claims and relief acts	877,465.65	1,013,825.49	2,073.30	1,893,364.44	941,926.39	180,294.84	771,143.21
Repayments in excess of payments					2,073.30		
Actual expenditures					939,853.09		
Total miscellaneous	2,631,893.38	7,591,537.97		10,223,431.35	7,750,121.71	548,579.03	1,924,730.61
RECAPITULATION.							
Civil establishment	83,659.12	2,014,868.00		2,098,527.12	1,977,466.00	54,370.41	66,690.71
Military establishment	16,241,223.36	110,144,381.33		126,385,604.69	103,563,801.90	2,023,738.04	20,798,064.75
Public works	66,837,565.39	8,331,911.29		75,169,476.68	42,652,221.71	43,301.09	32,473,953.88
Miscellaneous	2,631,893.38	7,591,537.97		10,223,431.35	7,750,121.71	548,579.03	1,924,730.61
Total	85,794,341.25	128,082,698.59		213,877,039.84	155,943,611.32	2,669,988.57	55,263,439.95

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REPORT OF THE CHIEF OF STAFF.

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REPORT OF THE CHIEF OF STAFF.

War Department,
Office of the Chief of Staff,
Washington, October 1, 1910.

Sir: The following report for the fiscal year ending June 30, 1910, is respectfully submitted:

The last annual report from this office was submitted by Maj. Gen. J. Franklin Bell, Chief of Staff, on December 1, 1909. The detail of that officer as Chief of Staff expired on April 22, 1910, and the undersigned was detailed as Chief of Staff to take effect upon that date. Prior to assuming the duties of that office, however, he was designated by the President as special ambassador of the United States at the centenary of the independence of the Argentine Republic and did not assume the duties of Chief of Staff until July 19, 1910. During the interim between the expiration of General Bell's detail, on April 22, and July 19 the duties of that office were performed by Brig. Gen. Tasker H. Bliss and by Maj. Gen. William H. Carter. This report is signed in accordance with the custom established in the past of having the report signed by the officer performing the duties of Chief of Staff at the date on which the report is submitted.

CHANGES IN PERSONNEL.

Brig. Gen. W. W. Wotherspoon was relieved from duty as assistant to the Chief of Staff and from the General Staff Corps on December 1, 1909, and was assigned to duty as president of the Army War College on the same date. Brig. Gen. Tasker H. Bliss was relieved from duty as the president of the Army War College and assigned to duty as assistant to the Chief of Staff on December 1, 1909. He was relieved from the latter duty and from the General Staff Corps on August 11, 1910. Maj. Gen. William H. Carter was detailed as a member of the General Staff Corps on February 17, 1910, and was assigned to duty as assistant to the Chief of Staff on July 23, 1910.

ESTIMATES AND APPROPRIATIONS.

Because of the condition of the Treasury, the estimates for the fiscal year ending June 30, 1911, were greatly reduced below those for preceding years, and as a result the appropriations made at the last session of Congress were very much less than what is deemed essential for efficient administration and reasonable progress in the military affairs of the nation. The appropriations have not been sufficient to permit any considerable amount of new construction or to continue construction already begun, except in cases where a direct loss would result from postponement. For the insular pos-

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sessions the appropriations were sufficient to make good progress toward the completion of fortifications. It is regretted that more satisfactory progress toward the completion of the fortification of home ports has been impracticable.

It is recognized that the number of guns and emplacements already provided in our fortified harbors at home is ample, if not more than ample, for the defense of the harbors in which they are located; but it must be admitted that fortifications are required at such an important point as the entrance to Chesapeake Bay, now wholly undefended. Since guns can not be used effectively at night without powerful searchlights and an adequate fire-control system, most of our harbors will not be properly prepared for defense until these absolutely essential accessories are provided. Until these details are completed the guns already emplaced at great expense will be of relatively little service.

RESERVE AMMUNITION AND SUPPLIES.

One of the most serious matters confronting the War Department at this time is the question of reserve ammunition and supplies. A large measure of dependence upon citizen soldiery brought into the service of the United States after war is declared has always been a recognized policy of the United States. Such soldiery will be of no value if we are not prepared to give them arms and ammunition when they are organized. We have accumulated a considerable supply of small arms and small-arms ammunition, but we are sadly deficient in the reserve supply of field artillery and field-artillery ammunition and of reserve seacoast ammunition. At the present rate of appropriations, it is estimated to take over fifty years to secure a reasonable supply of ammunition for the coast defenses, and a still longer time to secure a reasonable supply of field-artillery guns, carriages, and ammunition. The quota of field artillery is based upon the number of small arms which has already been provided by congressional appropriations.

The existing want of field-artillery guns, carriages, and ammunition constitutes a grave menace to the public safety in case of war. Ordinary prudence would seem to dictate, therefore, that the appropriations for field-artillery guns, carriages, and ammunition, and for reserve ammunition for the seacoast artillery should be very greatly increased. Once a state of war exists with a first-class power there will be no opportunity to buy this material abroad or time to manufacture it at home, even if all available plants were running at the maximum capacity, without such delay as would be fatal to our hopes of success. This shortage of field-artillery material is the most serious feature of the present military situation, and one which should be immediately corrected.

ABSENT OFFICERS.

Department and organization commanders and inspectors continue to report the great loss of efficiency in the army due to the absence of officers from their commands. Not only is the actual shortage of officers greatly felt, but due to the constant detachment of officers from their commands it is necessary to continually shift the duties of those remaining, and this tends to still further demoralize the discipline

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and instruction of the troops. Every effort has been made to reduce the number of officers on detached service, but the duties upon which they are engaged are such that it has been found to be practically impossible to reduce the number so detached without seriously interfering with the performance of some civil or military duty upon which these officers are engaged in accordance with existing law and regulations. A persistent effort is constantly made to employ suitable retired officers on every duty for which they are fitted, and no active officer is detailed for any duty before a careful study has been made of all available retired officers, with a view to detailing, if possible, a retired officer instead of one on the active list. There is only one manner in which permanent relief can be afforded without relieving officers from the important duties upon which they are engaged, and that is by the enactment of a law [a] which will give sufficient officers to perform all of the various duties required of the army, and hereafter when any law is enacted requiring additional duties of the army, the law should carry a provision authorizing an increase of officers sufficient to perform the new duties prescribed.

VOLUNTEERS.

Two years ago the President sent a special message to Congress urging the enactment of a law for raising a volunteer army in time of war. A bill [b] was introduced to carry this recommendation into effect, but as a result of certain objections developed in the course of hearings before the House Committee on Military Affairs, a subsequent bill was substituted for the first one. This latter bill is now before Congress, and it is hoped that it will receive favorable consideration at the coming session. This bill will cost nothing in time of peace and will save the Government millions of dollars in time of war. In the past, bills for raising the volunteer army have been enacted after the outbreak of war, and, as a result, they have contained many unwise provisions, the effect of which could not be appreciated in the hasty consideration of legislation in such a time of stress. The law now in force was enacted at the outbreak of the war with Spain and has proved to be very unsatisfactory—so much so, in fact, that a new law was enacted to provide for the volunteers used in the Philippine insurrection. Unfortunately the latter law was of a temporary nature, and after the volunteers raised under it were mustered out of the service the older law became reoperative. The bill now pending before Congress has been very carefully considered by the department and is believed to be as nearly perfect as can reasonably be expected. If the bill becomes a law it will be possible for the War Department to look forward and for the General Staff to make detailed plans for carrying it into execution in the event of war; but the present law is so unsatisfactory that no such plans can be drawn under it, as it is felt certain that in the event of war the law would be very materially modified.

MILITIA.

The strength of the Organized Militia, as reported by officers of the Regular Army detailed to make the annual spring inspections, is 119,660 officers and men, an increase of 734 over that reported last

[a] See page 133, appendix. [b] See page 134, appendix.

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year. This strength is distributed among 140 regiments, 9 separate battalions, 7 separate companies of infantry, 69 troops of cavalry, 51 batteries of field artillery, and 122 companies of coast artillery.

Under the operation of the new militia law military efficiency has continued to improve.

With a few minor exceptions, the organization and equipment of the militia is practically the same as that of the Regular Army, but the same can not be said of instruction and training. Inasmuch as the Constitution places the training of the militia in the hands of the state authorities, there is great variation in the matter of instruction and training from State to State. In some States the standard of training and instruction for field service is high, and the troops of such States could be fairly well fitted for war service after some weeks of preparatory training. In other States the instruction has been most elementary, and in still others both officers and men are deficient even in elementary instruction.

During the past year the War Department has made a great effort to assist the state authorities in their efforts to establish military efficiency by detailing officers of the Regular Army to conduct brief schools of instruction for militia officers. These schools were held in 27 States, and were attended by some thousands of militia officers. In addition, the Organized Militia of all but five of the States attended camps of instruction with the Regular Army, and many of the States had independent state camps of instruction. There appears to be a consensus of opinion that the short school of instruction for militia officers is an excellent means to prepare the company officers of the Organized Militia for field duty; but it does not reach the higher officers, and must be supplemented by field work requiring mobilization and maneuvers if we are to expect the militia to be in any way efficiently prepared for war.

No satisfactory progress can be had in the instruction of the Organized Militia until some provision is made by Congress for placing an adequate number of officers and noncommissioned officers of the Regular Army on duty with the Organized Militia.[a] For this purpose there should be one senior officer on duty at each state headquarters, and there should be at least one commissioned officer of junior rank to each regiment of infantry, each squadron of cavalry, and each battalion of artillery, assisted by one noncommissioned officer of the regular establishment for each company, troop, and battery of the militia.

By the organization of the first field army (G. O. 35, War Department, 1910) the first definite step was taken in the organization of a joint regular and militia force for national defense. It is intended during the ensuing year to perfect similar organizations embracing the remaining regular and militia forces in the United States, and to carry the policy one step further by the actual mobilization of at least one division of the first field army. This is a field army only in name, as the supply of war material is so deficient that its complete organization and equipment is, under present conditions, impossible without great delay. The same is true even to a greater extent of the other proposed field armies; not only is war material of most kinds wanting, but there are only regular troops and militia sufficient to form the barest skeleton of a field army in the various field army districts.

[a] See page 133, appendix.

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Material advance in the instruction of coast artillery reserves will not be possible until suitable armory equipment is provided for instruction in each home armory. This equipment can be procured at a comparatively small expense, and pending its installation the coast artillery reserves to a large extent are marking time. As a consequence, enthusiasm is falling off, the movement to provide the United States with an adequate coast-defense reserve from the Organized Militia is being checked, and much of the ground gained is being lost.

Suitable armories are essential to the efficient training of the militia. Some of the States, such as New York, Massachusetts, and Pennsylvania, have adopted a wise and liberal policy in regard to armories, but in other States the accommodation of armories is inadequate and ill adapted to the needs both of storage and indoor instruction. One of the most flagrant deficiencies in this matter of armories is to be found in the District of Columbia.

In the cavalry and field artillery the difficulty of providing horses renders satisfactory training next to impossible, and this difficulty should be lessened by giving these arms more assistance from the General Government. A practical solution of this problem, which should be tried in a tentative way, is for the United States to furnish forage [a] for horses that the States provide strictly for military purposes. The approximate annual cost of such a plan would be $400,000.

The field artillery is specially in need of this assistance from the National Government. Because of the absence of this assistance the instruction of this arm is far from satisfactory. Indeed, speaking in a general way, we may say that it is, with the exception of a few batteries, practically uninstructed in field duty and wholly unprepared for service. The gravity of this situation becomes evident when it is remembered that in both the Regular Army and the militia the field artillery falls far below its proper proportion with respect to the other arms.

The report of the target season of 1909 shows great improvement over the results obtained in the preceding year, but it appears that there is still too much time and money expended in qualifying the smaller part of the guard who are already marksmen for higher classification to the neglect of the larger part not yet qualified as marksmen.

The present militia law contains a number of defects,[b] bearing principally upon the manner in which the militia shall be brought into the service of the United States at the outbreak of war. The law is silent upon important features of this subject, and there are apparent contradictions in others. A careful study of this subject will be made with a view to rewriting portions of it so that these difficulties will be cleared up. One of the great difficulties with the militia in the past has been the confusion attendant upon their being mustered into the service of the United States. The War Department and the President have been subjected to all kinds of pressure to accept persons not suited for military service, and to make exemptions in the cases of many who were suited and called. The War Department has not been able to foretell exactly upon

[a] The issue of forage could be kept well in hand and would be subject to better supervision than providing animals that might suffer materially in a short time from improper care.

[b] See page 143, appendix.

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what organizations they could absolutely depend to respond to the call and has been compelled to accept troops wholly unsuited to the service. These conditions have arisen, as a rule, from constructions placed upon loosely drawn laws, and it is deemed to be of the greatest importance that the militia law should be so clearly drafted that it will be thoroughly understood by all. Thus mooted questions are settled in advance, and the department will be able to know in advance exactly what militia and the character of the militia it can depend upon in the event of war. Nothing should be left for the last minute, and everything possible should be done in advance to expedite the action of the War Department at the proper time if the stress of war should come.

MOBILE ARMY.

Infantry.—The infantry is already severely taxed by its present duties, and in order to furnish the infantry troops needed for the small garrisons at present maintained in our insular possessions and Alaska it has been necessary in some instances to diminish the infantry garrisons and in others to abandon posts. The increased demands which will be thrown upon the army incident to providing an adequate garrison for the Hawaiian Islands and the Canal Zone in addition to maintaining a reasonable force of infantry in the United States, will render a very considerable increase in the infantry arm necessary.

Cavalry.—Reorganization of the cavalry is a matter which demands attention, with a view to securing a regiment which is tactically better suited to the conditions of modern war than is our present regiment.

Field artillery.—The existing deficiency in the field artillery constitutes one of the greatest menaces to our country in case of war. If the present Regular Army and Organized Militia, at war strength, were called to arms to-day there would be a shortage of over 50 per cent in the field artillery necessary to equip them. As this force would only represent a portion of the force called to arms in case of war with a first-class power, the gravity of the situation becomes at once apparent. Our reserve of field artillery is insignificant in comparison with the demands which would be made upon it in case of war, and at the present rate of progress it will be over fifty years before an adequate reserve supply of field artillery of all kinds is accumulated. By an adequate reserve supply is meant a supply of field artillery of all kinds in proper proportion to the small arms already accumulated. The same general condition pertains with regard to field artillery ammunition. Under the heading "Militia" the condition of militia field artillery has been stated. It is, with the exception of a few good batteries, very unsatisfactory.

COAST ARTILLERY CORPS.

Conditions in the Coast Artillery Corps in all which concerns personnel are very satisfactory, and steady progress has been made in theoretical and practical work. The instruction of the coast artillery of the organized militia is progressing with a fair degree of rapidity in the north Atlantic seaboard districts, and will be much accelerated

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when the armory equipment necessary for instruction purposes has been furnished. The great reduction in appropriations has delayed the completion of important seacoast defenses and the installation of very necessary equipment, especially searchlights and fire-control systems.

RESERVES.

In view of the small size of the Regular Army and the small number of instructed militia, it is imperatively necessary that steps should be taken to organize a proper reserve from which the regular and militia organizations can be promptly filled up with instructed men to war strength, and from which new organizations can be formed; with these objects in view it is believed that steps should be taken looking to the organization into a reserve of men who are discharged from the Regular Army and the organized militia. These men should receive a small monthly pay, and in return should keep the War Department informed of their address and should be required to attend the annual maneuvers, receiving while on this duty full pay. This report is not the proper place to present the details of this scheme, but it is believed that it is a feasible one and one which, if carried out intelligently, would add greatly to our military efficiency and result in, within ten years, a reserve consisting of not less than 300,000 men who have served in the Regular Army or militia. Our present condition is one of unpreparedness for war with any first-class power. This unpreparedness is principally due, first, to the lack of any sufficient preparations for a mobile army, and, second, to our failure to assemble an adequate reserve of war material.

STAFF CORPS AND DEPARTMENTS.

These reports have been submitted directly to the Secretary of War and set forth in detail the views of the various departmental chiefs.

GENERAL REMARKS.

Attention is invited to the urgent necessity for greater concentration in post and barrack construction. The present comparatively small garrisons are scattered over large areas, involving the care of large extents of ground and the upkeep of roads, walks, sewers, etc., all of which have tended greatly to increase the cost of the maintenance of troops.

Remount system.—The present remount system is proving very satisfactory. The quality of mounts has greatly improved, and it is believed that the system as at present used should be continued, as it insures, within a very few years, a most excellent mount for the entire service.

General Service Corps.—The necessity for a general service corps has been emphasized in the annual reports of division and department commanders and staff officers for years. Its establishment is to be desired, both from the standpoint of economy, efficiency, and discipline.

Canteen.—It is the consensus of opinion in the army that the canteen should be reestablished. This opinion is concurred in by the undersigned.

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Inspections.—Instructions have been recently issued, directing division and department commanders to make annually, at least, one detailed inspection of all the troops under their command in all work covered by instruction orders. It is believed that inspections by division and department commanders should be more frequent and extensive than heretofore and that they should involve a thorough trying out of the troops in practical problems and practical field work and that officers' rating as to fitness for promotion should rest largely upon the efficiency of their commands as shown by these inspections and those made by the officers of the General Staff and the Inspector-General's Department.

Aeronautics.—In view of the very rapid advance made in aeronautics in the last few years and the imperative necessity for aeroplanes and dirigibles in war, it is important that adequate appropriations should be made available in order that the Signal Corps may be provided with a reasonable number of the better type of machines for instruction purposes and field work. The Signal Corps is, as now organized, insufficient to properly perform its present duties, and as the development of aeronautics will undoubtedly throw added work on this corps, attention is invited to the necessity for its increase.[a]

Very respectfully,

LEONARD WOOD,
Major-General, Chief of Staff.

The SECRETARY OF WAR.

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[a] There is a bill now pending before Congress to increase the efficiency of the Signal Corps (Senate 230, 61st Congress, 1st session).

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APPENDIX.

I. A BILL TO INCREASE THE EFFICIENCY OF THE ORGANIZED MILITIA, TO PROVIDE OFFICERS FOR DUTY AT MILITARY SCHOOLS AND COLLEGES IN THE SEVERAL STATES AND TERRITORIES, AND FOR OTHER PURPOSES.

The bill to provide additional officers for the army, known as the extra officers bill, which has been pending before Congress for several sessions, is as follows:

[S. 1024. Sixty-first Congress, first session.]

IN THE SENATE OF THE UNITED STATES.

APRIL 1, 1909.

Mr. Warren introduced the following bill; which was read twice and referred to the Committee on Military Affairs:

A BILL Authorizing extra officers for the army.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That hereafter positions vacated by officers on the active list of the army detailed for stated tours of duty, the usual length of which is not less than one year, in the General Staff Corps, not exceeding forty-two; as aids to general officers, not exceeding thirty-six; to college duty in the several States and Territories, not exceeding one hundred; to duty with the organized militia, not exceeding one to each State, Territory, and the District of Columbia; at the United States Military Academy, West Point, New York, not exceeding seventy-five; upon recruiting service, not exceeding ninety-five; as instructors and staffs at the special service schools for officers at Fort Monroe, Virginia, Fort Riley, Kansas, and Fort Leavenworth, Kansas, not exceeding sixty; to duty with the civil government in the Philippines, with the Philippine Scouts, and with the Isthmian Canal Commission, not exceeding sixty; as military attachés abroad, not exceeding fifteen; at the military prisons, not exceeding fifteen; as acting judge-advocates, not exceeding eight; other miscellaneous details, not exceeding fifty-seven; in all not exceeding six hundred and twelve, shall be subject to the provisions of section twenty-seven of the act approved February second, nineteen hundred and one, respecting the filling of such vacancies and the return of such officers to duty with their permanent arm, corps, or department: *Provided*, That all the details hereinbefore named shall be distributed among the several grades from colonel to second lieutenant in the discretion of the President, subject only to the limitation that they shall be, as nearly as practicable, in the following proportions, to wit: Two colonels to three lieutenant-colonels to five majors to nine captains to eight first lieutenants to seven second lieutenants.

In order that advantage may be retained of the present status of that bill and at the same time that changes may be incorporated in it whereby the number of officers detailed for duty with the Organized Militia may be increased, the proportionate number of officers in the field grades may be somewhat reduced, and a definite provision incor-

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porated whereby the increase will be spread over a period of five years in accordance with the precedent established in other acts increasing the commissioned personnel of the army, it is suggested that the bill be amended as follows:

Strike out all after the enacting words and substitute the following:

That upon the request of the governors of the several States and Territories concerned, the President may detach officers of the active list of the army from their proper commands for duty as inspectors and instructors of the Organized Militia, as follows, namely: Not to exceed one officer for each State, Territory, and the District of Columbia; not to exceed one additional officer for each division, brigade, regiment, and separate battalion of infantry, or its equivalent of other troops: *Provided*, That line officers detached for duty with the Organized Militia under the provisions of this act, together with those detached from their proper commands, under the provisions of law, for other duty the usual period of which exceeds one year, shall be subject to the provisions of section twenty-seven of the act approved February second, nineteen hundred and one, with reference to details to the Staff Corps, but the total number of detached officers made subject to the provisions of this section by this act shall not exceed six hundred and twelve: *And provided further*, That the number of such officers detached from each of the several branches of the line of the army shall be in proportion to the authorized commissioned strength of that branch; they shall be of the grades first lieutenant to colonel, inclusive, and the number detached from each grade shall be in proportion to the number in that grade now provided by law for the whole army.

SEC. 2. The vacancies caused or created by this act in the grade of second lieutenant shall be filled in accordance with existing law, one-fifth in each fiscal year until the total number of vacancies shall have been filled: *Provided*, That hereafter vacancies in the grade of second lieutenant occurring in any fiscal year shall be filled by appointment in the following order, namely: First, of cadets graduated from the United States Military Academy during that fiscal year; second, of enlisted men whose fitness for promotion shall have been determined by competitive examination; third, of candidates from civil life between the ages of twenty-one and twenty-seven years.

SEC. 3. The President is authorized to make rules and regulations to carry the provisions of this act into effect.

Amend the title of the bill to read as follows:

A bill to increase the efficiency of the Organized Militia, to provide officers for duty at military schools and colleges in the several States and Territories, and for other purposes.

II. THE VOLUNTEER BILL.

The following remarks are submitted with reference to the volunteer bill (S. 4003, 61st Cong., 2d sess.), together with a copy of the bill:

The Constitution provides:

The Congress shall have power, * * * to declare war, * * * to raise and support armies, * * * to make rules for the government and regulation of the land and naval forces; to provide for calling forth the militia to execute the laws of the Union, suppress insurrections, and repel invasions; to provide for organizing, arming, and disciplining the militia, and for governing such part of them as may be employed in the service of the United States, reserving to the States respectively the appointment of the officers and the authority of training the militia according to the discipline prescribed by Congress.

Under these provisions Congress has from time to time enacted laws providing for the organization and government of the Regular Army, the Militia, and the Volunteers.

The purpose of the bill now under consideration is to make rules for the government and regulation of certain land forces known

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as volunteers, which Congress may authorize to be called into service in time of war, or when war is imminent. This is a power specifically reserved to Congress by the Constitution. Acting under it, Congress has enacted many similar laws in the past, but every such law has been accompanied by heated debate upon questions of propriety or constitutionality of certain features of such laws. Questions of States rights have been raised and questions as to an infringement of the rights and privileges of the militia by the enactment of laws organizing volunteers. These questions will probably be raised again, and in the consideration of every feature of this bill great care has been taken to construct it in accordance with the constitutional provisions respecting the organization of land forces by the Federal Government, as well as the organization and training of the militia by the joint action of the Federal Government and the States.

The Constitution reserves to the governors of the States the right to appoint officers of the militia, but there has always been a very general sentiment in Congress that the governors should have the right to appoint and promote company and regimental officers of the volunteer troops raised within their respective States. This method of appointment and promotion of volunteer officers has been one of the weakest points in our volunteer system, and yet it will probably be one which will cause the greatest amount of discussion in connection with the present volunteer bill.

The existing law (act of April 22, 1898), provides for state volunteers, whole regiments, or other organizations being raised within the States, the officers appointed by the governors, and then turned into the United States as a whole. The act of March 2, 1899, and three prior acts of less general application, passed during the Spanish-American war, provided for United States volunteers, enlistments being made from the country at large and the officers appointed by the President. The act of April 22, 1898, did not recognize the difference between militia and volunteers, but since the Spanish-American war the militia laws have been entirely reorganized, and under the Dick bill the militia is recognized as an entirely separate organization from the volunteers. In that act there is a definite recognition of three different classes of troops, namely, the Regular Army, the militia, and the volunteers, and it is provided that the organized militia shall be called into the service of the United States before the volunteers are organized. The volunteer bill now proposed is intended to provide an organization for these volunteer troops—United States Volunteers—which shall be called out after the organized militia has been mustered in. The question of state volunteers is provided for by the Dick bill; that is, under the Dick bill, governors of States may organize troops, appoint officers, etc., and turn over such troops as a whole to the United States.

There is no new policy or principle involved in this matter, as we have had in every war United States volunteers in addition to the state troops.

The act of April 22, 1898, is the present law governing the organization of volunteers. This act was passed three days prior to the declaration of war with Spain, and it is but natural to expect that a law passed at such a time of excitement and confusion would contain many defects. It was, in fact, so very defective that within three months

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after its enactment Congress passed twelve different supplementary or amendatory bills, and within less than a year (March 2, 1899) passed another law organizing the volunteers on an entirely different principle.

The original act of April 22, 1898, was general in its application and has continued in force. Most of the amendatory and supplementary acts were of a temporary character and have subsequently become inoperative. The result is that we now have upon the statutes a volunteer act which has already proven to be a failure and which is entirely inconsistent with the provisions of subsequent acts organizing the Regular Army and the militia.

The act of April 22, 1898, provided only for volunteer troops in the field and made no provision whatever for temporary expansion of the staff corps in order to administer the volunteer army. A number of supplementary and amendatory acts above referred to were for the purpose of temporarily increasing the staff corps by the appointment of volunteer staff officers. The existing emergency having passed, these latter acts are no longer in effect, and there is no law on the statutes to-day providing for the appointment of volunteer officers of the staff corps.

The bill now proposed has been carefully prepared by the General Staff and has been pending before Congress for about five years. It was recommended to Congress in a special message by President Roosevelt in 1908, in which message it was stated that the bill had the hearty approval of Secretary of War Taft. During the hearings before the House Committee on Military Affairs it developed that while the bill was satisfactory to the military authorities, it contained several features that were objectionable to the committee. These objections were based principally upon the possibility of the President appointing an unnecessarily large number of high-ranking generals and staff officers. The bill was redrafted by the General Staff to meet these objections, and the redraft was introduced by Senator Warren and Mr. Hull. The latter draft is the one now under consideration. It is a shorter bill and, on the whole, a better bill than the original one.

The bill provides for a complete organization of any force of volunteers that may hereafter be called out, whether that force be a single regiment or an army of a million men. The bill harmonizes entirely with the militia organization under the Dick law and with the existing law governing the Regular Army. The bill is elastic and flexible in that the organization of the volunteer forces is prescribed to conform to that of the Regular Army, and any future changes in the Regular Army will automatically carry corresponding changes in the volunteer forces. This is as now prescribed by law for the militia.

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[S. 4003. Sixty-first Congress, second session.]

REMARKS.

IN THE SENATE OF THE UNITED STATES.

DECEMBER 13, 1909.

Mr. Warren introduced the following bill; which was read twice and referred to the Committee on Military Affairs.

A BILL To provide for raising the volunteer forces of the United States in time of actual or threatened war.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all male citizens of the United States, and all male persons of foreign birth that declare their intention to become citizens of the United States under and in pursuance of the laws thereof, who are of sound body and mind and between the ages of eighteen and forty-five years, are hereby declared to constitute the national forces, and with such exceptions and under such conditions as may be prescribed by law shall be liable to perform military duty in the service of the United States.

Existing law. Slight change in wording only.

SEC. 2. That the organized and active land forces of the United States shall consist of the Regular Army and of the national guard: *Provided*, That in time of war, or when war is imminent, the aforesaid land forces may be augmented by such volunteer forces as Congress may authorize.

This section accords with existing law in that it recognizes the national guard as a separate force from volunteers. The use of the term "national guard" instead of Organized Militia is new.

SEC. 3. That the Regular Army is the permanent military establishment which is maintained both in peace and war according to law.

Existing law.

SEC. 4. That the national guard is the organized militia of the several States and Territories and District of Columbia, organized as a land force and subject to be called into the service of the United States.

Existing law, except for the use of the term "national guard."

SEC. 5. That the volunteer forces shall be maintained only during the existence of war, or while war is imminent, and shall be raised and organized, as in this act provided, only after Congress has or shall have authorized the President to raise such a force: *Provided*, That all enlistments in the volunteer forces shall be for the period of the war, unless sooner discharged, and that all officers and men composing said forces shall be discharged from the service of the United States as soon as practicable after the conclusion of hostilities or the passing of the emergency.

Existing law, except for slight changes in wording and change in term of enlistment from two years to the period of the war.

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SEC. 6. That when volunteer forces are to be raised the President shall issue his proclamation stating the number of men desired for each arm, corps, and department within such limits as may be fixed by law, and the Secretary of War shall prescribe such rules and regulations, not inconsistent with the terms of this act, as may be necessary for the purpose of examining, organizing, and receiving into the service the men called for: *Provided*, That the power to organize shall include the power to provide the noncommissioned officers and enlisted men of all grades and classes, including trained nurses, male and female, that may be necessary in the various arms, corps, and departments: *Provided further*, That all men received in the service in the volunteer forces shall, as far as practicable, be taken from the several States and Territories and the District of Columbia in proportion to their respective populations.

Existing law, with slight verbal changes.

First proviso, new wording. Provides specifically what is implied in existing law.

Second proviso, existing law.

SEC. 7. That the volunteer forces shall be subject to the laws, regulations, and orders governing the Regular Army; and the organization of all units of the line and of the signal troops of such forces shall be the same as that prescribed by law and regulations for the corresponding units of the Regular Army: *Provided*, That when military conditions so require, the President may organize the land forces of the United States into brigades and divisions and such higher units as he may deem necessary, and the composition of units higher than the regiment shall be as he may prescribe: *Provided further*, That to each regiment of infantry, cavalry, and artillery, and to each battalion of engineers and signal troops organized under this act, there shall be attached the same personnel of sanitary troops as are attached to like organizations of the Regular Army: *Provided further*, That the organization of the coast defenses, of machine-gun detachments, sanitary formations, remount depots, transportation units, secret-service agencies, military prisons, lines of communications, and of other adjuncts that may be necessary in the prosecution of war, and the organization of which is not otherwise provided for by law, shall be as the President may from time to time direct.

Existing law.

Existing law for militia.

The existing law prescribes brigades of three regiments and divisions of three brigades and corps of three divisions.

New.

Existing law is silent upon this subject.

SEC. 8. That the staff of the commander of an army, of a field army, of a division, and of a brigade shall consist of his authorized personal staff and of such other staff officers as may be authorized by the President and assigned thereto.

The existing law prescribes the staff as follows:

ARMY CORPS.

1 asst. adjt. gen. (lieut. col.).
1 chief engineer (lieut. col.).
1 insp. gen. (lieut. col.).

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1 chief quartermaster (lieut. col.).
1 chief commissary (lieut. col.).
1 judge-advocate (lieut. col.).
1 chief surgeon (lieut. col.).
1 asst. adjt. gen. (capt.).
Authorized aids.

DIVISION.

1 asst. adjt. gen. (maj.).
1 engineer officer (maj.).
1 insp. gen. (maj.).
1 chief quartermaster (maj.).
1 chief commissary (maj.).
1 chief surgeon.
Authorized aids.

BRIGADE.

1 asst. adjt. gen. (capt.).
1 asst. quartermaster (capt.).
1 commissary (capt.).
1 surg. (capt.).
Authorized aids.

SEC. 9. That the President is authorized, by and with the advice and consent of the Senate, to appoint all field, staff, company, and medical officers required to effect the organization of units less than a brigade, including machine-gun detachments, as set forth in this act; and the necessary field, staff, company, and medical officers for the volunteer coast artillery in the service of the United States, the number and grade of such officers not to exceed the number and grade of like officers provided for a like force of the Regular Army; and volunteer general officers of such number and grade that the total number in each grade, including those of the Regular Army and national guard, shall not exceed one brigadier-general for every four thousand enlisted men in service, one major-general for every twelve thousand enlisted men in service, one lieutenant-general for each field army of not less than forty thousand men, and one general for each territorial army of not less than one hundred thousand men: *Provided*, That the President may appoint, by and with the advice and consent of the Senate, volunteer chaplains at the rate of one for each regiment of volunteer infantry, cavalry, and field artillery, and one for every twelve companies of volunteer coast artillery raised: *Provided further*, That each lieutenant-general, major-general, and brigadier-general of volunteers shall be entitled to the personal staff authorized by law for the like grade in the Regular Army, and each general to four aids selected from the army, and who shall have the rank, pay, and allow-

Existing law prescribes that all regimental and company officers shall be appointed by the governors, and all staff and general officers shall be appointed by the President. Volunteer acts of May 11, 1898, and March 2, 1899, prescribed all appointments by President.

Same as volunteer act of March 2, 1899, except that no command was provided above the division.

Same as existing law, except appointments are now provided to be by the governors.

Existing law allows a general six aids with rank of colonel.

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ances of colonel while serving on his staff: *And provided further*, That all appointments below the grade of brigadier-general in the line of the volunteer forces shall be by commission in an arm of the service and not by commission in any particular regiment; and officers in each arm of the service shall be assigned to regiments and transferred from one regiment to another, as the interests of the service may require, by orders from the War Department.

New.

SEC. 10. That to provide the staff officers that will be necessary in the various staff corps and departments in time of war, when war is imminent, and that are not otherwise provided for in this act, the President is authorized to appoint, by and with the advice and consent of the Senate, such number of volunteer staff officers of the proper grades for such corps and departments as he may find necessary: *Provided*, That the total number of such officers so appointed shall not exceed the ratio of one officer to two hundred enlisted men for all national guard and volunteer forces called into the service of the United States: *Provided further*, That no officer above the grade of colonel shall be appointed under the provisions of this section.

Volunteer act of April 22, 1898, failed to provide any staff officers except those for the troops in the field. Within three months there were eight different acts authorizing substantial increases of the staff corps by volunteer appointments. The act of March 2, 1899, specified a number of staff officers equal to 1 for each 175 enlisted men.

SEC. 11. That in appointing originally the volunteer officers authorized in this act, and in all subsequent promotions and appointments of volunteer officers, the President may select them from the Regular Army, from the organized militia of the District of Columbia, and, upon the recommendation of the various governors, from the organized militia of the several States and Territories, and from the country at large: *Provided*, That in appointments from the country at large preference shall be given those who have had honorable service in the Regular Army, the national guard, or the volunteer forces, or who have been graduated from educational institutions in which military instruction is compulsory, and to those duly qualified and registered pursuant to section twenty-three of the act approved January twenty-first, nineteen hundred and three: *Provided further*, That not to exceed two regular army officers shall hold volunteer commissions in any one battalion of volunteer engineers or signal troops at the same time; and not to exceed two regular army officers shall hold volunteer commissions in any one battalion of volunteer field artillery at the same time; and not to exceed five regular army

New wording, but the same thing could be done under act of March 2, 1899.

New.

Act of April 22, 1898, put the limit at one regular to each regiment. The act of March 21, 1899, put no limit on the number, but the number appointed was as provided in this section.

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officers shall hold commissions in any one regiment of volunteer cavalry, field artillery, or infantry, or in every twelve companies of coast artillery, including their field and staff, at the same time: *And provided further*, That regular army officers appointed as officers of volunteers under this act shall not thereby vacate their regular army commissions or be prejudiced in their relative or lineal standing.

Existing law.

SEC. 12. That the temporary vacancies created in any grade among the commissioned personnel of any regiment of cavalry or infantry or in the artillery, or any staff corps or department of the Regular Army, through appointments of its officers to higher volunteer rank, may be filled, by and with the advice and consent of the Senate, by the temporary appointment and promotion, with volunteer rank, of the remaining officers of the regiment, corps, or department in the order of their seniority therein: *Provided*, That vacancies remaining thereafter at the bottom of the regimental, corps, or department lists may be filled temporarily, by and with the advice and consent of the Senate, with volunteer officers of such number and grade as shall maintain each arm, corps, and department at its full authorized commissioned strength.

New.

New for line. This was provided for the staff by act of March 21, 1899.

SEC. 13. That all returns and muster rolls of organizations of the volunteer forces shall be rendered to The Adjutant-General of the Army, and upon the muster out of such organizations the records pertaining to them shall be transferred to and filed in The Adjutant-General's office. And regimental and all other medical officers serving with volunteer troops in the field or elsewhere shall keep a daily record of all soldiers reported sick or wounded, as shown by the morning calls or reports, and shall deposit such reports with other reports provided for in this section in The Adjutant-General's office, as provided herein for other reports, returns, and muster rolls.

Existing law, modified to accord with the abolishment of the Record and Pension Office.

SEC. 14. That in time of war all organizations of the regular, national guard, and volunteer forces shall be recruited and maintained as near their prescribed strength as practicable. For this purpose the necessary rendezvous and depots shall be established by the Secretary of War for the enlistment and training of recruits, and in order that officers may be available for recruiting duty the President is authorized, by and with the advice and consent of the Senate, to appoint officers of volunteers of the proper arm

New.

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of the service, additional to those elsewhere herein authorized, in numbers not to exceed at the rate of one major, four captains, five first lieutenants, and five second lieutenants for each organized regiment of cavalry, field artillery, and infantry, each three battalions of engineers, and each twelve companies of coast artillery, of both the Regular Army and the volunteer forces; that for purposes of instruction and discipline the troops at recruit depots herein authorized may be organized into companies and battalions, at the discretion of the Secretary of War, with noncommissioned officers and privates of such grades and numbers as may be prescribed by the President. The recruit rendezvous and recruit depots herein prescribed shall be under the direct control of the War Department, and shall render their reports and returns to The Adjutant-General of the Army: *Provided*, That to maintain the national guard organizations in the service of the United States at their maximum strength, the recruiting rendezvous and depots in any State or Territory may, at the request of the governor thereof, enlist and train recruits for the national guard organizations in the service of the United States from that State.

New.

New.

New.

SEC. 15. That in the organization of the recruiting system the President is authorized to employ retired officers, noncommissioned officers, and privates of the Regular Army, either with their rank on the retired list, or, in the case of enlisted men, with increased noncommissioned rank, or he may, by and with the advice and consent of the Senate, appoint and employ them with increased volunteer commissioned rank: *Provided*, That retired officers and enlisted men while thus employed shall not be eligible for transfer to the field units, but shall receive the full pay and allowances of the respective grades in which they are serving, whether volunteer or regular, in lieu of their retired pay and allowances: *Provided further*, That upon the termination of the duty, or, in case of those given volunteer rank, upon muster out as volunteers, the officers and men shall revert to their retired status.

Existing law authorizes the employment of retired army officers on this duty, but with no volunteer commissions.

SEC. 16. That all officers provided for in this act are, with the exceptions contained in section fifteen hereof, subject to such assignments of duty and such transfers as the President may make: *Provided*, That medical officers of volunteers when detailed as consulting surgeons shall not exercise command over the hospitals to which they

New.

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may be assigned for duty, except that by virtue of their commissions they may command all enlisted men: *Provided further*, That medical inspectors shall be detailed for duty with each army, field army, and division, and for the base and lines of communications, and that no officer shall be detailed for duty as a medical inspector except he be experienced in military sanitation.	New.
SEC. 17. That all officers and enlisted men of the volunteer forces shall be in all respects on the same footing as to pay, allowances, and pensions as officers and enlisted men of corresponding grades in the Regular Army:	Existing law.
Provided, That enlisted men in the quartermaster's department and subsistence department of the volunteer forces shall receive the same pay and allowances as enlisted men of corresponding grades in the Engineer Corps.	New.
SEC. 18. That the commander of a division or separate brigade is authorized to appoint, from time to time, military boards of not less than three nor more than five officers of the volunteer forces to examine into the capacity, qualifications, conduct, and efficiency of any commissioned officer of said forces within his command: *Provided*, That each member of the board shall be superior in rank to the officer whose qualifications are to be inquired into: *Provided further*, That if the report of such a board is adverse to the continuance of any officer, and the report be approved by the general commanding the field army to which the division or brigade belongs, such officer shall be discharged from service in the volunteer forces with one month's pay and allowances.	Existing law.
SEC. 19. That all laws or parts of laws inconsistent with the provisions of this act are, to the extent of such inconsistency only, hereby repealed.	

III. DEFECTS IN THE EXISTING MILITIA LAW KNOWN AS THE DICK BILL.

The principal defects in the existing militia law referred to in the body of this report are as follows:

Definition and precedence.

The militia must be called into the service of the United States before volunteers. The definition of militia is so hazy that incompetent high-ranking officers and troops not wanted can be forced upon the Federal Government.

Military duties.

The States have priority in the call to arms and can prevent the raising of volunteers within their respective bounds by calling all the militia into active service of the States.

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Compulsory military service.

Sections 1625 and 1628, Revised Statutes (act of May 8, 1792), required compulsory military (militia) service in time of peace of every able-bodied citizen between the ages of 18 and 45 years. This was repealed by the Dick bill of 1903.

Calling out the Militia.

Militia must be called into the service of the United States through the governors of the States. If a governor refuses to transmit the call, he can not be coerced, and, in case of an unpopular war, the militia may refuse to recognize a call not transmitted to them by their governor. Militia which refuses to come when called is subject to trial by courts-martial, but no court has been given jurisdiction over such cases. No punishment is prescribed for the offense, and in case whole organizations refuse to respond it is quite certain that no adequate punishment would be imposed.

Enlistment.

The terms and conditions of enlistment are optional with the States. Militia must be accepted, if offered, but can not be held beyond the term of enlistment. Thus the United States may have forced upon it large numbers of short-term troops.

Organization, armament, and discipline.

The law prescribes that the organization, armament, and discipline of the militia shall be the same as that of the Regular Army, but there is no penalty or condition imposed in case the militia does not come up to that standard, and the acceptance of the militia into the service of the United States is in no way contingent upon it.

Physical standard.

The law prescribes that for those States which have adopted the army medical standard the militia shall be mustered into the service of the United States without further physical examination. The adoption of a physical standard does not insure its enforcement, and there is nothing in the law to insure such enforcement.

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REPORT OF THE ADJUTANT-GENERAL.

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REPORT OF THE ADJUTANT-GENERAL.

WAR DEPARTMENT,
THE ADJUTANT-GENERAL'S OFFICE,
October 31, 1910.

SIR: As in reports for previous years, this report for the fiscal year ended June 30, 1910, has been extended in scope beyond that year where such extension tends to continuity and completeness of data.

In the statistics presented distinction is made between those relating to the Regular Army and those relating to the Philippine Scouts. Where items pertaining to the Philippine Scouts are included in statistics relating to the Army, that fact is specifically indicated in the text.

AUTHORIZED STRENGTH OF THE ARMY.

The authorized strength of the entire military establishment on July 1, 1909, not including the Hospital Corps, was 4,373 officers and 78,788 enlisted men in the Regular Army and 178 officers and 5,731 enlisted men in the Philippine Scouts, a total of 4,551 officers and 84,519 enlisted men. The permanently authorized strength on July 1, 1910, not including the Hospital Corps, was 4,432 officers and 76,901 enlisted men in the Regular Army and 180 officers and 5,732 enlisted men in the Philippine Scouts, a total of 4,612 officers and 82,633 enlisted men.

It will be seen from the foregoing statement that there was an increase of 59 officers and a decrease of 1,887 enlisted men in the authorized strength of the Regular Army, and an increase of 2 officers and 1 enlisted man in the authorized strength of the Philippine Scouts.

The increase in the number of commissioned officers of the Regular Army was the result of an increase of 34 in the number of officers of the Medical Corps, and the assignment of 17 additional officers of the Medical Reserve Corps to active duty, under the provisions of the act of Congress approved April 23, 1908 (35 Stat. L., 66); an increase of 1 officer in the Bureau of Insular Affairs, authorized by the act of Congress approved March 23, 1910 (36 Stat. L., 248); and the inclusion of the 7 professors at the Military Academy, who in previous years had not been included in the list of commissioned officers of the Army, but had been reported as officers of the academy.

Under the provisions of the act of Congress approved March 23, 1910, before cited, there was an increase of 3 in the number of commissary sergeants. Reductions in the authorized enlisted strength made during the year were announced in War Department General

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Orders, Nos. 223 of 1909 and 21 and 25 of 1910. Those reductions amounted to 1,890 enlisted men—386 in the cavalry, 1,500 in the infantry, and 4 in the service-school detachments, a net decrease of 1,887 in the permanently authorized enlisted strength of the Regular Army.

The increase of 2 officers and 1 enlisted man in the authorized strength of the Philippine Scouts was the result of the formation during the year of another battalion of the scouts (General Orders, No. 243, War Department, December 4, 1909).

On July 22, 1909, the Secretary of War announced that the President had directed that during the fiscal year beginning July 1, 1910, the strength of the military establishment, including the Philippine Scouts and the Hospital Corps, should not exceed 80,000. The reduction necessary to bring the Army down to the strength fixed by the President was accomplished, on or before June 30, 1910, by leaving unfilled vacancies that occurred in the ranks of various organizations. No reduction in the published authorized strength of organizations was made, but, in General Orders, No. 95, War Department, May 23, 1910, it was directed that, "to keep the expenditure on account of the enlisted men of the Army within the limits of the appropriations made available by existing acts of appropriation for the support of the Army," no requests for or enlistments of recruits for organizations of the line of the Army, except those stationed in Alaska, Porto Rico, and the Philippine Islands, should be made in excess of certain numbers fixed by the order before cited. Compliance with this order will result in maintaining the maximum enlisted strength of the Army, including the strength of the Hospital Corps and the Philippine Scouts, below 80,000 men.

The permanently authorized strength of the military establishment on October 15, 1910, by branches of service, is shown in the following table:

Branches of service.	Officers.	Enlisted men.	Total.
General officers	21	.....	21
Adjutant-General's Department	24	.....	24
Inspector-General's Department	17	.....	17
Judge-Advocate-General's Department	12	.....	12
Quartermaster's Department	96	200	296
Subsistence Department	44	203	247
Medical Department	[a] 621	([b])	621
Pay Department	53	.....	53
Corps of Engineers	189	2,002	2,191
Ordnance Department	85	730	815
Signal Corps	46	1,212	1,258
Bureau of Insular Affairs	3	.....	3
Cavalry	765	12,775	13,540
Field artillery	236	5,220	5,456
Coast Artillery Corps	672	19,321	19,993
Infantry	1,530	25,231	26,761
Porto Rico Regiment of Infantry	32	576	608
United States Military Academy detachments	7	500	507
Recruiting parties, recruit depots, and unassigned recruits	.....	8,000	8,000
United States Military Prison guards	.....	320	320
Service-school detachments	.....	546	546
Indian scouts	.....	75	75
Total Regular Army	4,453	76,911	81,364
Philippine Scouts	180	5,732	5,912
Aggregate	4,633	82,643	87,276

[a] Including officers of the Medical Reserve Corps on active duty.
[b] Not including the Hospital Corps.

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It should be borne in mind, however, that the total enlisted strength of the military establishment, including the Hospital Corps and the Philippine Scouts, is limited, as a temporary expedient, to not exceeding 80,000 men during the fiscal year 1911.

It is to be observed that the authorized enlisted strength hereinbefore shown does not include the Hospital Corps, which, under the act of Congress approved March 1, 1887 (24 Stat. L., 435), is not to be counted as a part of the enlisted strength of the Army. The authorized strength of the Hospital Corps is 3,500 men.

The authorized number of officers hereinbefore shown includes 197 first lieutenants of the Medical Reserve Corps, assigned to active duty under the provisions of the act of Congress approved April 23, 1908 (35 Stat. L., 66).

ACTUAL STRENGTH OF THE ARMY.

The actual strength of the entire military establishment on June 30, 1910, was 4,273 officers and 67,485 enlisted men in the Regular Army and 166 officers and 5,386 enlisted men in the Philippine Scouts, making a total of 4,439 officers and 72,871 enlisted men. The figures here given for the enlisted men of the Army do not include the strength of the Hospital Corps (Medical Department), which was 3,408 enlisted men.

As in previous years, telegraphic reports showing the actual strength of the Army on October 15 were obtained with a view to secure data, for use in this report, showing that strength at as late a date as practicable. It appears from those reports that, on October 15, 1910, there were 4,310 officers and 67,459 enlisted men in the Regular Army and 166 officers and 5,100 enlisted men in the Philippine Scouts, making a total of 4,476 officers and 72,559 enlisted men, not including 3,486 enlisted men of the Hospital Corps, but including 197 first lieutenants of the Medical Reserve Corps on active duty. The actual strength of the Army on October 15, 1909, was 4,209 officers and 71,840 enlisted men in the Regular Army and 157 officers and 5,572 enlisted men in the Philippine Scouts, making a total of 4,366 officers and 77,412 enlisted men, not including 3,485 enlisted men in the Hospital Corps, but including 217 first lieutenants of the Medical Reserve Corps on active duty.

The following table shows the actual strength of the Army on October 15, 1910, by branches of service:

Branches of service.	Officers.	Enlisted men.	Total.
General officers	21	.....	21
Staff corps and departments	[a] 924	[b] 2,316	3,240
Engineers	186	1,817	2,003
Cavalry	760	11,003	11,763
Field artillery	232	4,807	5,039
Coast Artillery Corps	667	17,930	18,597
Infantry	1,520	23,666	25,186
Miscellaneous	.....	5,920	5,920
Total Regular Army	[a] 4,310	[b] 67,459	71,769
Philippine Scouts	166	5,100	5,266
Aggregate	[a] 4,476	[b] 72,559	77,035

[a] Including 197 first lieutenants of the Medical Reserve Corps on active duty.
[b] Not including 3,486 enlisted men of the Hospital Corps.

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COMPARISON OF AUTHORIZED AND ACTUAL STRENGTH.

The changes in the permanently authorized and in the actual strength during the year October 15, 1909, to October 15, 1910, and a comparison of the number of vacancies on the latter date with the number of vacancies on the earlier date can be shown most satisfactorily in tabular form. The following table shows the actual and the permanently authorized strength of the military establishment October 15, 1910, and October 15, 1909, not including the Hospital Corps, together with the increases and decreases during the year and the number of vacancies on each of those dates:

	Regular Army.			Philippine Scouts.			Total.		
	Officers.	Enlisted men.	Total.	Officers.	Enlisted men.	Total.	Officers.	Enlisted men.	Total.
Permanently authorized strength:									
October 15, 1910	4,453	76,911	81,364	180	5,732	5,912	4,633	82,643	87,276
October 15, 1909	4,431	78,788	83,219	178	5,731	5,909	4,609	84,519	89,128
Increase or decrease during year	[a] 22	[b] 1,877	[b] 1,855	[a] 2	[a] 1	[a] 3	[a] 24	[b] 1,876	[b] 1,852
Actual strength:									
October 15, 1910	4,310	67,459	71,769	166	5,100	5,266	4,476	72,559	77,035
October 15, 1909	4,209	71,840	76,049	157	5,572	5,729	4,366	77,412	81,778
Increase or decrease during year	[a] 101	[b] 4,381	[b] 4,280	[a] 9	[b] 472	[b] 463	[a] 110	[b] 4,853	[b] 4,743
Vacancies:									
October 15, 1910	143	9,452	9,595	14	632	646	157	10,084	10,241
October 15, 1909	222	6,948	7,170	21	159	180	243	7,107	7,350

[a] Increase. [b] Decrease.

It will be seen from the foregoing table that there was a decrease in the permanently authorized enlisted strength of the Army, but that there was a larger decrease in the actual enlisted strength, which was 10,084 enlisted men short of that strength on October 15, 1910, as against a deficiency of 7,107 enlisted men on October 15, 1909. The increased number of vacancies in the enlisted strength, shown in the table, is the result of the reduction, as a temporary expedient for the fiscal year 1911, of the total enlisted strength, below 80,000 enlisted men, including the Hospital Corps and the Philippine Scouts, referred to in the section of this report relating to the authorized strength of the Army.

The actual enlisted strength on October 15, 1910, was 3,955 below the temporary limit of 80,000 enlisted men, including the Hospital Corps and the Philippine Scouts, established for the fiscal year 1911.

PHILIPPINE SCOUTS.

Since the date of the last annual report, a new battalion consisting of 4 companies of Philippine Scouts was organized, making a total of 12 battalions of those troops that have been organized under the authority contained in the act of Congress approved February 2, 1901 (31 Stat. L., 757). No change was made during the year in the number (52) of companies of natives of the Philippines organized as scouts. The total authorized strength of the Philippine Scouts is 180 officers and 5,732 enlisted men.

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GEOGRAPHICAL DISTRIBUTION OF TROOPS.

The geographical distribution of the Army on October 15, 1910, is shown in the following table:

Geographical distribution.	Officers.	Enlisted men.	Total.
In the United States	3,366	56,321	59,687
In Alaska	50	1,128	1,178
In the Philippines:			
Regular Army	719	10,884	11,603
Philippine Scouts	166	5,100	5,266
In Porto Rico	29	595	624
In Hawaii	72	1,334	1,406
Troops en route and officers at other foreign stations	74	683	757
Total	4,476	76,045	80,521

The foregoing table includes 3,486 enlisted men of the Hospital Corps, distributed as follows: United States, 2,726; Alaska, 50; Philippines, 641; Porto Rico, 20; Hawaii, 35; en route, 14. It also includes 197 first lieutenants of the Medical Reserve Corps on active duty.

CHANGES OF STATIONS OF TROOPS.

The tables following show the movements of troops to and from the insular possessions and Alaska, and changes of stations of troops within the continental limits of the United States during the fiscal year ended June 30, 1910.

Movements of troops on transports to and from the insular possessions and Alaska.

Transport.	Left—		Arrived at—		Troops on board.
	Place.	Date.	Place.	Date.	
		1909.		1909.	
Thomas	San Francisco, Cal.	July 6	Manila, P. I.	Aug. 1	Troops A and K, Twelfth Cavalry, and Twelfth Infantry.
Logan	Manila, P. I.	July 15	San Francisco, Cal.	Aug. 10	Companies C and D, Engineers, and Thirteenth Infantry.
Buford	Seattle, Wash.	Aug. 5	Manila, P. I.	Aug. 29	Third Infantry.
Sheridan	Presidio, San Francisco, Cal.	...do...	...do...	Aug. 31	One hundred and forty-sixth Company, Coast Artillery Corps.
De	San Francisco, Cal.	...do...	Honolulu, Hawaii	Aug. 12	One hundred and fifth and one hundred and fifty-ninth Companies, Coast Artillery Corps.
Thomas	Manila, P. I.	Aug. 15	San Francisco, Cal.	Sept. 10	Twenty-ninth Infantry.
Logan	San Francisco, Cal.	Sept. 7	Camp Overton, P. I.	Oct. 5	Twenty-first Infantry.
Sheridan	Manila, P. I.	Sept. 11	Seattle, Wash.	...do...	Twenty-fifth Infantry.
Buford	...do...	Sept. 15	San Francisco, Cal.	Oct. 15	Fifty-seventh Company, Coast Artillery Corps.
Logan	...do...	Oct. 15	...do...	Nov. 12	Eighteenth Infantry.
Sheridan	San Francisco, Cal.	Nov. 5	Manila, P. I.	Dec. 2	Fourteenth Cavalry, except Troops D, L, and M.
				1910.	
Logan	...do...	Dec. 6	Malabang, P. I.	Jan. 3	Second Cavalry, except Troops A and E.
Sheridan	Manila, P. I.	Dec. 15	San Francisco, Cal.	Jan. 12	Sixth Cavalry.

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Movements of troops on transports to and from the insular possessions and Alaska—Con.

Transport.	Left—		Arrived at—		Troops on board.
	Place.	Date.	Place.	Date.	
		1910.		1910.	
Thomas	San Francisco, Cal.	Jan. 5	Manila, P. I.	Jan. 31	Sixth Infantry.
Logan	Manila, P. I.	Jan. 15	San Francisco, Cal.	Feb. 12	First Cavalry.
Sheridan	San Francisco, Cal.	Feb. 5	Manila, P. I.	Mar. 8	Troops A and E, Second Cavalry.
Do	do	do	Ormoc, P. I.	Mar. 4	Nineteenth Infantry.
Thomas	Manila, P. I.	Feb. 15	San Francisco, Cal.	Mar. 16	Fourteenth Infantry.
Logan	San Francisco, Cal.	Mar. 7	Manila, P. I.	Apr. 2	Troops L and M, Fourteenth Cavalry; Batteries A and B, First Field Artillery; and Thirteenth Company, Coast Artillery Corps.
Sheridan	Manila, P. I.	Mar. 24	San Francisco, Cal.	Apr. 20	Twenty-third Infantry.
Sherman	San Francisco, Cal.	Apr. 5	Cebu, P. I.	May 2	Ninth Infantry.
Do	do	do	Manila, P. I.	May 7	Troop D, Fourteenth Cavalry.
Logan	Manila, P. I.	Apr. 15	San Francisco, Cal.	May 12	Batteries A and B, Fifth Field Artillery, and Thirty-fifth Company, Coast Artillery Corps.
Sherman	do	May 15	do	June 11	Fourth Infantry.
Logan	San Francisco, Cal.	June 6	Manila, P. I.	July 2	Battery C, Second Field Artillery.
Buford	Seattle, Wash.	June 29	Fort William H. Seward, Alaska.	July 4	Headquarters and Companies F, G, H, and K, Sixteenth Infantry.
Do	do	do	Fort Davis, Alaska	July 16	Companies B and E, Sixteenth Infantry.
Do	do	do	Fort Gibbon, Alaska	Aug. 1	Companies A and L, Sixteenth Infantry.
Do	do	do	Fort Liscum, Alaska	July 7	Companies C and I, Sixteenth Infantry.
Do	do	do	Fort St. Michael, Alaska.	July 18	Companies D and M, Sixteenth Infantry.

Changes of stations of troops within the United States.

Organization.	Left—		Arrived at—	
	Place.	Date.	Place.	Date.
		1909.		1909.
Troop M, Tenth Cavalry	Fort Riley, Kans.	July 15	Fort Ethan Allen, Vt.	July 18
Headquarters and First and Third Battalions, Twenty-sixth Infantry.	San Francisco, Cal.[a]	July 17	Fort Wayne, Mich.	July 22
Second Battalion, Twenty-sixth Infantry.	do.[a]	do	Fort Brady, Mich.	Do.
First Squadron, Eleventh Cavalry.	Fort Ethan Allen, Vt.	July 27	Fort Oglethorpe, Ga.	July 28
Tenth Cavalry, except Troop M.	New York City[a]	do	Fort Ethan Allen, Vt.	Do.
Troops G and H, Fifteenth Cavalry.	Fort Ethan Allen, Vt.	July 28	Fort Leavenworth, Kans.	July 30
First and Third Battalions, Third Infantry.	Fort George Wright, Wash.[b]	Aug. 4	Seattle, Wash.	Aug. 5
Troop G, Ninth Cavalry	Fort Leavenworth, Kans.	do	Fort D. A. Russell, Wyo.	Do.
Headquarters and Second Battalion, Third Infantry.	Fort Lawton, Wash.[b]	Aug. 5	Seattle, Wash.	Do.
Sixty-seventh Company, Coast Artillery Corps.	Presidio, San Francisco, Cal.	Aug. 6	Fort Baker, Cal.	Aug. 6
One hundred and fifty-eighth Company, Coast Artillery Corps.	do	Aug. 9	Fort Miley, Cal.	Aug. 9
Companies C and D, Engineers.	San Francisco, Cal.[a]	Aug. 12	Washington Barracks, D. C.	Aug. 17
Headquarters and First and Second Battalions, Thirtieth Infantry.	do.[a]	do	Presidio, San Francisco, Cal.	Aug. 12

[a] En route from Philippine Islands. [b] En route to Philippine Islands.

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Changes of stations of troops within the United States—Continued.

Organization.	Left—		Arrived at—	
	Place.	Date.	Place.	Date.
		1909.		1909.
Companies I and M, Thirtieth Infantry.	San Francisco, Cal.[a]	Aug. 13	Fort Mason, Cal.	Aug. 13
Companies K and L, Thirtieth Infantry.	do.[a]	do.	Presidio, Monterey, Cal.	Do.
Company K, Eighth Infantry.	Fort Mason, Cal.	do.	do.	Do.
Twenty-first Infantry, except Company F.	Fort Logan, Colo.[b]	Sept. 2	San Francisco, Cal.	Sept. 6
Company F, Twenty-first Infantry.	Whipple Barracks, Ariz.[b]	do.	do.	Do.
Headquarters and Third Battalion, Twenty-ninth Infantry.	San Francisco, Cal.[a]	Sept. 11	Fort Jay, N. Y.	Sept. 17
First Battalion, Twenty-ninth Infantry.	do.[a]	do.	Fort Porter, N. Y.	Do.
Second Battalion, Twenty-ninth Infantry.	do.[a]	do.	Fort Niagara, N. Y.	Sept. 16
Headquarters and First Battalion, Twenty-fifth Infantry.	Seattle, Wash.[a]	Oct. 5	Fort Lawton, Wash.	Oct. 5
Second and Third Battalions, Twenty-fifth Infantry.	do.[a]	do.	Fort George Wright, Wash.	Oct. 6
One hundred and nineteenth Company, Coast Artillery Corps.	Fort Mott, N. J.	Oct. 15	Fort Washington, Md.	Oct. 15
Fifty-seventh Company, Coast Artillery Corps.	San Francisco, Cal.[a]	Oct. 16	Presidio, San Francisco, Cal.	Oct. 16
Headquarters and Troops A, B, and C, Fourteenth Cavalry.	Fort Walla Walla, Wash.[b]	Nov. 1	San Francisco, Cal.	Nov. 4
Troop K, Fourteenth Cavalry.	Boise Barracks, Idaho[b]	do.	do.	Do.
Troops E, F, G, H, and I, Fourteenth Cavalry.	Presidio, San Francisco, Cal.[b]	Nov. 4	do.	Do.
One hundred and twenty-first Company, Coast Artillery Corps.	Key West Barracks, Fla.	Nov. 9	Fort Screven, Ga.	Nov. 10
Thirty-sixth Company, Coast Artillery Corps.	Fort Moultrie, S. C.	Nov. 10	Fort Du Pont, Del.	Nov. 11
Headquarters and Second and Third Battalions, Eighteenth Infantry.	San Francisco, Cal.[a]	Nov. 14	Fort Mackenzie, Wyo.	Nov. 19
First Battalion, Eighteenth Infantry.	do.[a]	do.	Whipple Barracks, Ariz.	Nov. 16
One hundred and sixty-second Company, Coast Artillery Corps.	Key West Barracks, Fla.	Nov. 16	Fort Dade, Fla.	Nov. 17
Third Battalion, Nineteenth Infantry.	Fort Mackenzie, Wyo.	Nov. 19	Presidio, San Francisco, Cal.	Nov. 24
Second Cavalry, except Troops A and E.	Fort Des Moines, Iowa[b]	Nov. 28	San Francisco, Cal.	Dec. 3
Batteries A and B, Second Field Artillery.	Fort D. A. Russell, Wyo.	Dec. 6	Vancouver Barracks, Wash.	Dec. 9
Headquarters and Batteries A and B, Fourth Field Artillery.	Vancouver Barracks, Wash.	Dec. 10	Fort D. A. Russell, Wyo.	Dec. 14
				1910.
Second Battalion, Sixth Infantry.	Fort Lincoln, N. Dak.[b]	Dec. 30	San Francisco, Cal.	Jan. 4
Third Battalion, Sixth Infantry.	Fort Missoula, Mont.[b]	Dec. 31	do.	Jan. 3
Headquarters and First Battalion, Sixth Infantry.	Fort William Henry Harrison, Mont.[b]	do.	do.	Do.
		1910.		
Sixty-seventh Company, Coast Artillery Corps.	Fort Baker, Cal.	Jan. 4	Presidio, San Francisco, Cal.	Jan. 4
One hundred and fifty-eighth Company, Coast Artillery Corps.	Fort Miley, Cal.	do.	do.	Do.
Headquarters and First Squadron, Sixth Cavalry.	San Francisco, Cal.[a]	Jan. 14	Fort Des Moines, Iowa	Jan. 19
Second and Third Squadrons, Sixth Cavalry.	do.[a]	do.	do.	Jan. 20
Troops A and E, Second Cavalry.	Fort Des Moines, Iowa[b]	Jan. 28	San Francisco, Cal.	Feb. 2
Second Battalion, Nineteenth Infantry.	Fort McIntosh, Tex.[b]	Jan. 29	do.	Feb. 3
Headquarters and First Battalion, Nineteenth Infantry.	Fort Bliss, Tex.[b]	Jan. 31	do.	Do.

[a] En route from Philippine Islands. [b] En route to Philippine Islands.

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Changes of stations of troops within the United States—Continued.

Organization.	Left—		Arrived at—	
	Place.	Date.	Place.	Date.
		1910.		1910.
Third Battalion, Nineteenth Infantry.	Presidio, San Francisco, Cal.[a]	Feb. 4	San Francisco, Cal.	Feb. 4
Battery D, First Artillery	do.	Feb. 12	Fort Sill, Okla.	Feb. 16
Troops A, B, C, D, K, and M, First Cavalry.	San Francisco, Cal.[b]	do.	Presidio, San Francisco, Cal.	Feb. 12
Troops I and L, First Cavalry.	do.[b]	Feb. 13	Boise Barracks, Idaho	Feb. 16
Headquarters and Second Squadron, First Cavalry.	do.[b]	do.	Fort Walla Walla, Wash.	Do.
Thirteenth Company, Coast Artillery Corps.	Fort Monroe, Va.[a]	Feb. 27	San Francisco, Cal.	Mar. 4
Troop L, Fourteenth Cavalry.	Boise Barracks, Idaho[a]	Feb. 28	do.	Mar. 3
Batteries A and B, First Field Artillery.	Fort Sill, Okla.[a]	Mar. 1	do.	Mar. 7
Troop M, Fourteenth Cavalry.	Presidio, San Francisco, Cal.[a]	Mar. 7	do.	Do.
Headquarters and Second Battalion, Fourteenth Infantry.	San Francisco, Cal.[b]	Mar. 17	Fort William Henry Harrison, Mont.	Mar. 21
Third Battalion, Fourteenth Infantry.	do.[b]	do.	Fort Missoula, Mont.	Mar. 20
First Battalion, Fourteenth Infantry.	do.[b]	do.	Fort Lincoln, N. Dak.	Mar. 22
Ninth Infantry	Fort Sam Houston, Tex.[a]	Mar. 29	San Francisco, Cal.	Apr. 3
Company I, Signal Corps	do.	Apr. 1	Fort D. A. Russell, Wyo.	Apr. 5
Troop D, Fourteenth Cavalry.	Presidio, Monterey, Cal.[a]	Apr. 4	San Francisco, Cal.	Apr. 4
Headquarters and Second Battalion, Twenty-third Infantry.	San Francisco, Cal.[b]	Apr. 21	Fort Bliss, Tex.	Apr. 24
First Battalion, Twenty-third Infantry.	do.[b]	do.	Fort McIntosh, Tex.	Apr. 26
Third Battalion, Twenty-third Infantry.	do.[b]	do.	Fort Clark, Tex.	Apr. 25
Company C, Hospital Corps.	Fort Niagara, N. Y.	Apr. 23	Walter Reed General Hospital, D. C.	Apr. 24
Company M, Engineers	Fort Leavenworth, Kans.	Apr. 30	Fort D. A. Russell, Wyo.	May 2
Troops A and D, Third Cavalry.	Fort Clark, Tex.	May 1	Fort Sam Houston, Tex.	May 7
One hundred and tenth Company, Coast Artillery Corps.	Fort Adams, R. I.	May 2	Fort Greble, R. I.	May 2
Batteries A and B, Fifth Field Artillery.	San Francisco, Cal.[b]	May 12	Presidio, San Francisco, Cal.	May 12
Thirty-fifth Company, Coast Artillery Corps.	do.[b]	do.	Fort Monroe, Va.	May 18
Battery E, First Field Artillery.	Presidio, San Francisco, Cal.	May 15	Fort Sill, Okla.	May 19
First Company, Coast Artillery Corps.	Fort Levett, Me.	May 31	Fort McKinley, Me.	May 31
Eighth Company, Coast Artillery Corps.	Fort Preble, Me.	do.	do.	Do.
One hundred and fifty-first Company, Coast Artillery Corps.	Fort Revere, Mass.	do.	Fort Andrews, Mass.	Do.
Battery C, Second Field Artillery.	Fort D. A. Russell, Wyo.[a]	June 1	San Francisco, Cal.	June 5
Thirty-ninth Company, Coast Artillery Corps.	Fort De Soto, Fla.	June 8	Fort Morgan, Ala.	June 9
Headquarters and First and Second Battalions, Fourth Infantry.	San Francisco, Cal.[b]	June 12	Fort Crook, Nebr.	June 17
Third Battalion, Fourth Infantry.	do.[b]	do.	Fort Logan H. Roots, Ark.	Do.
Headquarters and Second and Third Battalions, Sixteenth Infantry.	Fort Crook, Nebr.[a]	June 23	Seattle, Wash.	June 28
First Battalion, Sixteenth Infantry.	Fort Logan H. Roots, Ark.[a]	do.	do.	Do.

[a] En route to Philippine Islands. [b] En route from Philippine Islands. [c] En route to Alaska.

The foregoing table does not show practice marches or temporary changes of stations.

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TROOPS SENT TO THE PHILIPPINES.

During the fiscal year, 575 officers and 7,738 enlisted men were sent to the Philippines, making a total of 8,029 officers and 180,065 enlisted men, including volunteers, sent there since the commencement of the war with Spain. It is to be observed that the numbers stated above are far in excess of the actual number of individual officers and enlisted men that had Philippine service. Many men who served in the Philippine Islands in the Volunteer Army subsequently entered the Regular Army and again served there. In addition, many officers and enlisted men of the Regular Army have served two tours of duty, and some of them three tours, in the Philippines. Each of these services is counted once in the numbers given above, and consequently many of the individuals are counted more than once in those numbers.

SECOND LIEUTENANTS APPOINTED.

During the year ended June 30, 1910, 276 second lieutenants were appointed to the Army. The following table shows the sources from which the appointments before referred to were made and the corps or arms of the service to which the appointees were assigned:

Source from which appointed.	Assigned to—					
	Engineers.	Cavalry.	Coast Artillery Corps.	Field artillery.	Infantry.	Total.
United States Military Academy	26	35	40	16	65	182
Enlisted men, United States Army	.....	2	.....	6	8	16
Civil life	.....	.....	71	1	6	78
Total	26	37	111	23	79	276

The 101 cadets who were graduated from the United States Military Academy in June, 1909, were not commissioned until after the close of the fiscal year 1909. Those 101 appointments were noticed in the last annual report as having been made after the close of the fiscal year covered by that report. They are also included in the 182 appointments from the United States Military Academy shown in the preceding table. The 81 members of the class that was graduated in June, 1910, were commissioned before the close of the fiscal year ended June 30, 1910. They were assigned to corps and arms of the service as follows: Corps of Engineers, 11; cavalry, 15; Coast Artillery Corps, 20; field artillery, 7; infantry, 28.

Of the 78 appointments shown in the preceding table as having been made from civil life, 6 were graduates from the United States Naval Academy. They were assigned to the Coast Artillery Corps. Three of those appointed from civil life declined their appointments.

Since the close of the fiscal year, June 30, 1910, 35 second lieutenants have been appointed in the Army. The following table shows

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the sources from which those appointments were made and the corps or arms of the service to which the appointees were assigned:

Source from which appointed.	Assigned to—				
	Cavalry.	Coast Artillery Corps.	Field artillery.	Infantry.	Total.
United States Military Academy				1	1
Enlisted men, United States Army	1	2	1	6	10
Civil life	1	16	1	6	24
Total	2	18	2	13	35

Of the 24 appointments shown in the preceding table to have been made from civil life, 3 were graduates from the United States Naval Academy. Two of them were assigned to the Coast Artillery Corps and 1 to the field artillery.

The appointments referred to in the preceding tables left 25 vacancies in the line of the Army—1 in the Coast Artillery Corps and 24 in the infantry. These vacancies existed July 1, 1910, and are available at the date of this report for the appointment of civilian candidates under the provisions of War Department General Orders, Nos. 84 and 86, of 1909.

An examination of civilian candidates, to determine their fitness for appointment as second lieutenants in the infantry, will be held at Fort Leavenworth, Kans., beginning November 1, 1910.

COMMISSIONED OFFICERS IN ACTIVE SERVICE.

On June 30, 1910, there were 4,273 commissioned officers on the active list of the Army. Of these, 1,167 (including 65 chaplains) were general officers or officers of the staff corps and departments, 750 belonged to the cavalry, 230 to the field artillery, 634 to the Coast Artillery Corps, and 1,492 to the infantry.

Of the 1,167 general and staff officers, 1,046 were present for duty, 39 on leave, 14 absent sick, 66 on detached duty, 1 in arrest, and 1 in the hands of the civil authorities. Of the 3,106 line officers, 2,306 were present for duty, 35 were absent sick, 97 on leave, 662 on detached duty, 5 in arrest, and 1 in the hands of the civil authorities.

From the foregoing it appears that 25.76 per cent of the line officers and 10.37 per cent of the general and staff officers were absent from their commands. At the close of the preceding fiscal year 27.38 per cent of the line officers and 12.51 per cent of the general and staff officers were so absent. This shows that the relative number of officers absent from their commands was less than at the close of the preceding year.

In addition to the officers on the active list, there were 89 retired officers under assignment to active duty on June 30, 1910, as is more fully shown elsewhere in this report.

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OFFICERS ON DETACHED SERVICE.

The commanding generals of a majority of the geographical military departments, as in previous years, invite attention in their annual reports to the shortage of officers due mainly to the relatively large number of officers absent from their commands on detached service. On June 30, 1909, there were 6.67 per cent of the general officers and officers of the staff corps and departments and 21.46 per cent of the line officers on detached service. On June 30, 1910, those percentages were 5.66 for general and staff officers and 21.31 for officers of the line.

The character of duty performed by the officers of the Army on detached service on June 30, 1910, the number so detached, and their rank and branches of service are shown in the following table:

Duty and branches of service from which detached.	Rank.								
	Major-general.	Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	First lieutenant.	Second lieutenant.	Total.
The General Staff:									
General officers	2	1							3
Staff departments			1		1	1			3
Cavalry			1	2	3	4			10
Field artillery			1		1	2			4
Coast Artillery Corps				1	2	3			6
Infantry			1	3	5	9			18
Total	2	1	4	6	12	19			44
With the General Staff:									
Field artillery						1			1
Infantry						2			2
Total						3			3
Army War College:									
General officers		1							1
Staff departments				1		1			2
Cavalry				1	4	3			8
Field artillery				1	1				2
Coast Artillery Corps						2			2
Infantry				3	9	8			20
Total		1		6	14	14			35
United States Military Academy:									
Staff departments					2	5	5		12
Cavalry				1	1	3	5	7	17
Field artillery						1	9		10
Coast Artillery Corps					1	1	12		14
Infantry						11	8	5	24
Total				1	4	21	39	12	77
Army service schools, Fort Leavenworth, Kans.:									
Staff departments					2	6	1		9
Cavalry						19	1		20
Field artillery						6	3		9
Infantry					3	43	9		55
Total					5	74	14		93
Artillery School, Fort Monroe, Va.:									
Coast Artillery Corps					5	24	22		51
Mounted Service School, Fort Riley, Kans.:									
Cavalry					1	5	8	3	17
Field artillery						2	6		8
Total					1	7	14	3	25

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Duty and branches of service from which detached.	Rank.								
	Major-general.	Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	First lieutenant.	Second lieutenant.	Total.
Engineer School, Washington Barracks, D. C.:									
Staff departments							1	5	6
School of Musketry, Presidio of Monterey, Cal.:									
Infantry					1	1	1		3
At schools in Europe:									
Staff departments						1			1
Cavalry						1			1
Total						2			2
Instructors at civil educational institutions:									
Cavalry					1	9	9	1	20
Coast Artillery Corps						2			2
Infantry					1	21	14	6	42
Total					2	32	23	7	64
Recruiting service:									
Cavalry			1	1	2	7	17		28
Field artillery					3	1	4		8
Coast Artillery Corps			1		1	9	13		24
Infantry				1	3	24	30	1	59
Total			2	2	9	41	64	1	119
Aides-de-camp:									
Cavalry						2	5	2	9
Field artillery						1	2		3
Coast Artillery Corps						2			2
Infantry						1	9	2	12
Total						6	16	4	26
With Philippine government:									
Staff departments					1	1			2
Cavalry						4	1		5
Coast Artillery Corps						1			1
Infantry				1	2	5			8
Total				1	3	11	1		16
With Cuban government:									
Cavalry						1			1
Field artillery						1			1
Coast Artillery Corps						1			1
Total						3			3
With Isthmian Canal Commission:									
Staff departments			2	6	6	3			17
Cavalry							4		4
Coast Artillery Corps					1				1
Infantry					1	1	1		3
Total			2	6	8	4	5		25
Military attachés:									
Cavalry					2	1	1	1	5
Field artillery					1		1		2
Coast Artillery Corps					1	1	1		3
Infantry					1	2	1		4
Total					5	4	4	1	14
With Porto Rico Regiment:									
Cavalry						1			1
Infantry						2			2
Total						3			3
With Philippine Scouts:									
Cavalry						4			4
Coast Artillery Corps						1			1
Infantry						7			7
Total						12			12

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Duty and branches of service from which detached.	Rank.								
	Major-general.	Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	First lieutenant.	Second lieutenant.	Total.
Acting judge-advocates:									
Cavalry						1	1		2
Infantry						2	4		6
Total						3	5		8
With Quartermaster's Department:									
Cavalry					1	3	4	1	9
Field artillery							1		1
Coast Artillery Corps						2	1		3
Infantry					1	5	5	1	12
Total					2	10	11	2	25
Assistants to Chief of Coast Artillery Corps:									
Coast Artillery Corps				1	1	4	1		7
Acting inspectors-general:									
Cavalry					1				1
Coast Artillery Corps					2				2
Total					3				3
In bureaus of War Department:									
Staff departments					1				1
Cavalry						1			1
Field artillery							1		1
Coast Artillery Corps			1						1
Infantry						3			3
Total			1		1	4	1		7
At department headquarters:									
Cavalry						1	2	1	4
Field artillery				1		1			2
Coast Artillery Corps				1	2	1			4
Infantry					1	4	3	1	9
Total				2	3	7	5	2	19
At the military prisons:									
Cavalry							2		2
Coast Artillery Corps							2		2
Infantry				1		2	5		8
Total				1		2	9		12
With militia:									
Infantry					1				1
Member of Ordnance Board:									
Coast Artillery Corps						1			1
Alaskan Road Commission:									
Infantry					1		1		2
Office Engineer Commissioner, District of Columbia:									
Staff departments					1	3			4
Superintendent, State, War, and Navy Building:									
Staff departments							1		1
Office Public Buildings and Grounds:									
Staff departments					1	1			2
Cavalry								1	1
Total					1	1		1	3
In charge of Indian prisoners:									
Cavalry							1		1
With Signal Corps:									
Infantry						1			1

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Duty and branches of service from which detached.	Rank.								
	Major-general.	Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	First lieutenant.	Second lieutenant.	Total.
Special duty abroad:									
Cavalry						1		1	2
Infantry							1	1	2
Total						1	1	2	4
Members of boards:									
Cavalry			1		1	2			4
Field artillery				1					1
Total			1	1	1	2			5
Superintendent, Yosemite National Park:									
Cavalry					1				1
On special duty:									
Staff departments				1					1
Student Cornell University:									
Staff departments							1		1

RECAPITULATION.

Rank.	General officers and officers of staff corps and departments.	Cavalry.	Field artillery.	Coast Artillery Corps.	Infantry.	Total.
Major-general	2					2
Brigadier-general	2					2
Colonel	3	3	1	2	1	10
Lieutenant-colonel	8	5	3	3	9	28
Major	15	18	6	16	30	85
Captain	22	73	16	55	154	320
First lieutenant	9	61	27	52	92	241
Second lieutenant	5	18			17	40
Total	66	178	53	128	303	728
Percentage	5.66	23.73	23.04	20.19	20.31	17.04

It will be seen from the foregoing table that, of the 662 line officers on detached duty, 565, or 85.4 per cent, were captains or lieutenants. Of the 637 line officers on detached duty June 30, 1909, 553, or 86.8 per cent, were captains or lieutenants.

RETIRED OFFICERS ON ACTIVE DUTY.

On June 30, 1910, there were 89 retired officers under assignment to active duty. The table following shows the grades and employment of those officers.

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Duty.	Grades.									
	Lieutenant-general.	Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	First lieutenant.	Second lieutenant.	Chaplain.	Total.
At the Soldiers' Home	1	1		1						3
On recruiting service					7	9	2			18
With State militia			2	4	12	15	3			36
At educational institutions				2	8	11	3	1		25
At army service schools, Fort Leavenworth, Kans				1						1
In office of Chief of Staff								1		1
At Army War College						1				1
Military attachés					2					2
On special duty				1					1	2
Total	1	1	2	9	29	36	8	2	1	89

Of the retired officers on duty, as shown in the foregoing table, 1 lieutenant-general, 1 brigadier-general, and 1 lieutenant-colonel (all at the United States Soldiers' Home in this city) were entitled to receive from the United States only the pay of their respective grades; 2 colonels and 8 lieutenant-colonels were entitled to receive the pay that a retired major would receive under a like assignment; and 29 majors, 36 captains, 8 first lieutenants, 2 second lieutenants, and 1 chaplain were entitled to the full active pay of their respective grades.

OFFICERS EXAMINED FOR PROMOTION.

During the fiscal year ended June 30, 1910, 246 officers were examined and 5 were reexamined for promotion under the provisions of the acts of Congress approved October 1, 1890 (26 Stat. L., 563), April 23, 1908 (35 Stat. L., 66), and March 3, 1909 (35 Stat. L., 737).

Of the 246 officers examined, 228 were found qualified for promotion; 8 were found professionally disqualified, and of these 7 were suspended from promotion for one year and 1 is to be suspended upon the occurrence of a vacancy to which he would have been promoted if found qualified; 2 were honorably discharged under the provisions of the act of April 23, 1908, before cited; 8 were found physically disqualified, and of these 6 have been retired and 2 are to be retired upon the occurrence of vacancies. Of the 6 who have been retired, 1 was retired after the close of the fiscal year 1910.

Of the officers reexamined, 2 were promoted, 1 was retired, and 2 were honorably discharged.

Five officers who had been examined in the preceding fiscal year were retired on account of disability during the fiscal year 1910.

PHYSICAL EXAMINATIONS AND TESTS FOR OFFICERS.

The annual physical examinations of all officers of the Army, and physical tests of officers above the grade of captain, to determine their fitness for active field operations, as prescribed in General Orders, No. 148, War Department, July 30, 1910, are to be held at some

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time during the three months beginning about August 1 in the United States and Alaska, and about December 1 in Porto Rico, Hawaii, and the Philippine Islands.

In the cases of officers serving in the United States, the examinations and tests for the present year, required by the order before cited, are now in progress. So few reports of the results of the examinations and tests in those cases have been received that no statement of any value with regard to those results can be made in this report.

RETIRED OFFICERS.

On June 30, 1909, there were 1,000 commissioned officers on the retired list. During the fiscal year ended June 30, 1910, 80 officers were placed on the retired list, 64 of those on that list died and 1 was dismissed, leaving 1,015 officers of the Army on the retired list June 30, 1910. The following table shows the grades on the retired list and causes of retirement of those officers:

Grades.	By operation of law, 64 years of age (act of June 30, 1882).	After reaching 62 years of age (sec. 1244, R. S.).	On own application.		By direction of the President, having served over 20 years (act of July 5, 1884).	For disability.				After failure to pass second professional examination (act of March 3, 1909).	Under special acts of Congress.	Total.
			After over 40 years' service (act of June 30, 1882).	After over 30 years' service (sec. 1243, R. S.).		In line of duty.			Not in line of duty (sec. 1252, R. S.).			
						Section 1251, Revised Statutes.	With increased rank (acts of October 1, 1890, April 23, 1908, and March 3, 1909).	With full rank of command when wounded (act of July 28, 1866).				
Lieutenant-general	3		2									5
Major-general	15		8					1				24
Brigadier-general	90	15	98	24		19		3			2	251
Colonel	40	1	16	22		17		2				98
Lieutenant-colonel	23	1	5	21		20	20				1	91
Major	18		3	44	1	102	47	5		1		221
Captain	6			16		119	40		3		4	188
First lieutenant	1			1		62	20		2			86
Second lieutenant						20			1		1	22
Chaplain:												
Lieutenant-colonel	3											3
Major	6					12						18
Captain	5					3						8
Total	210	17	132	128	1	374	127	11	6	1	8	1,015

Of the 11 officers who were retired under section 32 of the act of Congress approved July 28, 1866 (14 Stat. L., 337), on account of disability occasioned by wounds received in battle, with the full rank of the command held by them at the time such wounds were received, 3 were advanced three grades upon retirement, 4 two grades, and 4 one grade. All of them, with the exception of the major-general and 1 brigadier-general, received a further advance of one grade under the act of Congress approved April 23, 1904 (33 Stat. L., 264). In addition to these, 97 brigadier-generals, 30 colonels, 52 lieutenant-colonels, 105 majors, 30 captains, and 5 first lieutenants hold their present

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grades on the retired list through an advancement of one grade under the act of Congress approved April 23, 1904, making a total of 328 officers on the retired list June 30, 1910, who have been advanced one grade under that act because of service during the civil war.

The following table shows, by grades, the number of officers of the Army retired from active service during the fiscal year ended June 30, 1910, and the causes of their retirement:

Grades.	By operation of law, 64 years of age (act of June 30, 1882).	On own application.		For disability.			After failure to pass second professional examination (act of March 3, 1909).	Total.
		After over 40 years' service (act of June 30, 1882).	After over 30 years' service (sec. 1243, R. S.).	Incident to the service (sec. 1251, R. S.).	Not incident to the service (sec. 1252, R. S.).	Preventing promotion (acts of Oct. 1, 1890, and April 23, 1908).		
Major-general	1							1
Brigadier-general	3			3				6
Colonel	9	1	3	3				16
Lieutenant-colonel			2	1				3
Major	1		8	5		3	2	19
Captain			1	11		2		14
First lieutenant				12	1	5		18
Second lieutenant				2				2
Chaplain:								
Major				1				1
Total	14	1	14	38	1	10	2	80

From the foregoing table it will be seen that 80 officers of the Army were placed on the retired list during the fiscal year ended June 30, 1910. During the preceding year 88 officers were placed on that list.

Of the officers shown in the preceding table as having been retired during the year, 2 colonels and 1 major were advanced one grade on the retired list, on account of civil war service, under the provisions of the act of Congress approved April 23, 1904 (33 Stat. L., 264).

COMMISSIONED OFFICERS WHO HAD CIVIL WAR SERVICE.

The official records show that of the 4,310 commissioned officers on the active list of the Regular Army October 15, 1910, only 7 served in the Army, Navy, or Marine Corps during the civil war, otherwise than as cadets, prior to April 9, 1865. Following is a list of those officers:

General officers—Brig. Gen. Earl D. Thomas, Brig. Gen. Charles L. Hodges, and Brig. Gen. Daniel H. Brush.

Judge-Advocate-General's Department—Brig. Gen. George B. Davis, Judge-Advocate-General.

Quartermaster's Department—Col. John L. Clem and Maj. Daniel W. Arnold.

Subsistence Department—Col. James N. Allison.

There were 1,022 officers of the Army on the retired list October 15, 1910. Of these, 526 served in the Army, Navy, or Marine Corps, otherwise than as cadets, prior to April 9, 1865. The following table

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shows, by grades, the number of officers on the retired list of the Army October 15, 1910, and the number of those officers that had civil war service, otherwise than as cadets, prior to April 9, 1865:

Grades.	Officers on the retired list October 15, 1910.		
	Total.	Civil war service.	No civil war service.
Lieutenant-generals	5	5	.....
Major-generals	24	24	.....
Brigadier-generals	251	229	22
Colonels	98	42	56
Lieutenant-colonels	92	57	35
Majors	219	109	110
Captains	196	39	157
First lieutenants	86	5	81
Second lieutenants	22	.....	22
Chaplains:			
Lieutenant-colonels	3	3	.....
Majors	18	13	5
Captains	8	.....	8
Total	1,022	526	496

It will be seen from the foregoing table that over 51 per cent of the officers of the Army on the retired list October 15, 1910, served as officers or enlisted men in the Army, Navy, or Marine Corps during the civil war. On October 15, 1909, 56 per cent of the officers of the Army on that list had had civil war service.

RETIRED ENLISTED MEN.

On July 1, 1909, there were 2,836 enlisted men on the retired list created by the provisions of the act of Congress approved February 14, 1885 (23 Stat. L., 305), modified by the acts of Congress approved September 30, 1890 (26 Stat. L., 504), and March 2, 1907 (34 Stat. L., 1218). During the fiscal year 314 enlisted men were placed on the retired list and 129 of the men on that list died, leaving 3,021 enlisted men on the retired list at the close of the year, June 30, 1910.

PERSONS QUALIFIED TO HOLD VOLUNTEER COMMISSIONS.

Certificates were issued during the past fiscal year, under the provisions of section 23 of the act of Congress approved January 21, 1903 (32 Stat. L., 779), in the cases of 12 persons who were found upon examination by boards of officers convened for that purpose to be "specially qualified to hold commissions in any volunteer force which may hereafter be called for and organized under the authority of Congress other than a force composed of organized militia." Of these, 2 were from California, 3 from New York, 1 was from Illinois, 1 from Massachusetts, 1 from Michigan, 1 from Oregon, 1 from Pennsylvania, and 2 were noncommissioned officers of the Army.

Since the enactment of the law before cited, only 58 certificates of qualification to hold commissions in the volunteer force have been issued.

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MILITIA OFFICERS AT ARMY SERVICE SCHOOLS.

During the fiscal year ended June 30, 1910, 44 officers of the organized militia of the States and Territories and District of Columbia were admitted to and attended army service schools under the provisions of section 16 of the act of Congress approved January 21, 1903 (32 Stat. L., 778), as amended by the act of Congress approved May 27, 1908 (35 Stat. L., 402).

Of these, 43 were admitted to and attended garrison schools, but 3 were relieved at their own request and 1 was relieved for cause before completing the course, and 1 was admitted to and attended the Army Medical School.

Of the officers admitted to the service schools, 2 were from Arkansas, 1 was from California, 7 were from the District of Columbia, 2 from Georgia, 2 from Indiana, 1 from Maine, 4 from Massachusetts, 11 from Michigan, 3 from Minnesota, 6 from Mississippi, 3 from Nebraska, 1 from Tennessee, and 1 from West Virginia.

OFFICERS OF THE ARMY DETAILED AT CIVIL EDUCATIONAL INSTITUTIONS.

The detail of officers of the Army to civil educational institutions as professors of military science and tactics is authorized by section 1225, Revised Statutes, as amended by the acts of Congress approved September 26, 1888 (25 Stat. L., 491), January 13, 1891 (26 Stat. L., 716), November 3, 1893 (28 Stat. L., 7), and April 21, 1904 (33 Stat. L., 225).

Under the section of the Revised Statutes and the several amendments before cited, with the exception of the amendment made by the act of Congress approved April 21, 1904, the details are confined to "any established military institute, seminary or academy, college or university, * * * having capacity to educate at the same time not less than one hundred and fifty male students," and the number of officers of the active list of the Army, and of the retired list with full pay and allowances, that may be detailed to such institutions is limited to 100. The number of retired officers that may, with their consent, be detailed at civil educational institutions without any compensation from the United States other than their retired pay, under the provisions of the act of April 21, 1904, before cited, is unlimited.

The laws before cited, and the regulations carrying them into effect, are published in General Orders, No. 231, War Department, November 16, 1909. Under those laws and regulations, 87 officers (63 on the active list and 24 on the retired list) were under detail as professors of military science and tactics at civil educational institutions on June 30, 1909. During the fiscal year ended June 30, 1910, details were withdrawn from 4 such institutions and 5 new institutions received details, so that on the latter date there were 88 officers of the Army (63 of the active list and 25 of the retired list) on duty at institutions of this character.

Under the provisions of the War Department order before cited the institutions, not exceeding 10 in any year, whose students have exhibited the greatest application and proficiency in military training and knowledge are to be designated as "distinguished institutions,"

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and the President has authorized the announcement that an appointment as second lieutenant in the Regular Army will be awarded annually to an honor graduate of each of those institutions. The "distinguished institutions" for the past year were announced in General Orders, No. 114, War Department, June 21, 1910. They are as follows, the names of the institutions being arranged alphabetically:

Agricultural and Mechanical College of Texas, College Station, Texas.
Culver Military Academy, Culver, Indiana.
Maryland Agricultural College, College Park, Maryland.
New Mexico Military Institute, Roswell, New Mexico.
Norwich University, Northfield, Vermont.
Pennsylvania Military College, Chester, Pennsylvania.
St. John's College, Annapolis, Maryland.
St. John's School, Manlius, New York.
The Citadel, Charleston, South Carolina.
Virginia Military Institute, Lexington, Virginia.

STRENGTH AND LOSSES OF THE ARMY.

The tables following show (*a*) the strength of the Army of the United States June 30, 1909, and June 30, 1910, with the losses from all causes between those dates; (*b*) the strength and losses from all causes in the Army in each month of the fiscal year; (*c*) the strength of the Army, by division and departments, at the end of each month of the fiscal year; and (*d*) the number of deaths in the Army during the fiscal year:

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Fif												
Six				2					59	259		
Un												
		1	12	5	1	4	2	5	303	1,570		6
Coa			29	17	9	6	1	16	998	5,112		
Fir			3					1	37	173		
Sec			5			1		2	33	191		
Thi			5		2			1	15	138		
Fou			3		1			7	3	111		
Fif			6			1		1	32	397		
Six			3	1		1		2	20	93		
Sev			2					7	1	155		
Eig			2	1		1	1	3	76	252		
Nin			2					2	26	128		
Ten			2	2			1	3	33	310		
Ele			2	1		1		4	72	290		
Tw			3	2				4	3	242		
Thi			5	1				3	56	244		
Fou			4	2				7	25	153		
Fif			1					8	71	206		
Six								2	27	124		
Sev			3	1		1	1	2	37	238		
Eig			1		1			8	17	548		
Nin			5	1			1	3	33	160		
Tw			3		1	1		5	7	278		
Tw			2					3	22	121		
Tw					1			8	8	179		
Tw			7			1		10	19	157		
Tw				1				2	12	93		
Tw			2	1			1	6	13	637		
Tw			2	1				4	39	640		
Tw			2		2	1		3	48	294		
Tw			3		1	1		1	71	269		
Tw			3	2		1			45	590		
Thi				1				6	54	639		
Pos			2	1	1				2	123		
Un												
			83	19	10	11	5	118	957	8,182		
We								2	21	145		
Ind			1					1		18		
Cas			10	1	1	3	1	6	429	1,506		
			11	1	1	3	1	9	450	1,669		
Tot	2	2	194	54	23	32	13	305	3,464	23,688	3	16
Phi			24	1		2	1		42	724		2
	2	2	218	55	23	34	14	305	3,506	24,412	3	18

s a part of the enlisted strength of the Regular Army. (24 Stat. L., 435.)

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The losses in the Army during the year ended June 30, 1910, are shown in the following statement:

REGULAR ARMY.

Officers:		
Killed in action or died of wounds, disease, etc	17	
Resigned or discharged	46	
Dismissed	5	
Retired	80	
		148
Enlisted men:		
Killed in action or died of wounds, disease, etc	320	
Discharged upon expiration of term of service	11,911	
Discharged for disability, by sentence of court-martial, or by order	7,688	
Deserted	3,464	
Retired	305	
		23,688
Total		23,836

Wounded, 3 officers and 16 enlisted men.

PHILIPPINE SCOUTS.

Officers:		
Killed in action or died of wounds, disease, etc	1	
Resigned or discharged	10	
Dismissed	1	
		12
Enlisted men:		
Killed in action or died of wounds, disease, etc	28	
Discharged upon expiration of term of service	500	
Discharged for disability, by sentence of court-martial, or by order	154	
Deserted	42	
		724
Total		736

Wounded, 2 enlisted men.

AGGREGATE.

Officers:		
Killed in action or died of wounds, disease, etc	18	
Resigned or discharged	56	
Dismissed	6	
Retired	80	
		160
Enlisted men:		
Killed in action or died of wounds, disease, etc	348	
Discharged upon expiration of term of service	12,411	
Discharged for disability, by sentence of court-martial, or by order	7,842	
Deserted	3,506	
Retired	305	
		24,412
Total		24,572

Wounded, 3 officers and 18 enlisted men.

It appears from the foregoing table that 11,911 enlisted men of the Regular Army were discharged upon expiration of term of service during the fiscal year ended June 30, 1910. During the preceding fiscal year the number of discharges upon expiration of term of service was 12,903, and during the fiscal year 1908 it was 18,485. Those numbers are, respectively, 12.6, 12.8, and 18.8 per cent of the whole number of enlisted men in service, or of enlisted contracts in force, during each of those years.

The losses from all causes other than expiration of term of service among enlisted men of the Regular Army during the fiscal year

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ended June 30, 1910, numbered 11,777. During the preceding fiscal year those losses were 12,889, and during the fiscal year 1908 they were 13,095. Those numbers are, respectively, 12.5, 12.8, and 13.3 per cent of the whole number of enlisted men in service, or of enlistment contracts in force, during each of those years.

DESERTIONS.

The official returns show 3,464 desertions from the enlisted force of the Regular Army during the fiscal year ended June 30, 1910. This number is 3.66 per cent of the whole number of enlisted men in service, or of enlistment contracts in force, during that year. In the preceding fiscal year the number of desertions was 4.97 per cent of the whole number of enlisted men in service during that year. The number of desertions from the Regular Army during the fiscal year 1910 was 30.6 per cent less than the number of desertions during the preceding fiscal year.

A comparison of the percentages of desertions in each year since and including 1898 is presented in the following table, which shows the percentages of the whole number of enlisted men in service during each of the fiscal years 1898–1910 reported to have deserted:

Fiscal years.	Percentage deserted.	Fiscal years.	Percentage deserted.
1910	3.66	1903	7.10
1909	4.97	1902	5.00
1908	4.59	1901	4.12
1907	5.62	1900	4.09
1906	7.43	1899	3.22
1905	6.79	1898	1.57
1904	6.61		

It will be seen from the foregoing table that the relative number of desertions during the past fiscal year was less than in any fiscal year since 1899.

The following table shows the percentage of the whole number of desertions occurring in each of the several specified periods of service during the past fiscal year and the two preceding years:

Period of service in which desertion took place.	Percentage of the whole number of desertions.		
	Year ended June 30, 1910.	Year ended June 30, 1909.	Year ended June 30, 1908.
First three months' service	7	20	29
Second three months' service	8	24	27
Third three months' service	17	19	11
Fourth three months' service	14	11	6
First year of service	46	74	73
Second year of service	29	10	8
Third year of service	7	1	3
First enlistment	82	85	84
Second enlistment	13	10	12
Third enlistment	3	3	3
Fourth enlistment and subsequent enlistments	2	2	1
Total	100	100	100

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It will be seen from the foregoing table that there was a marked decrease in the relative number of desertions among men in the first few months of their service and that there was a decided increase in the number of desertions among men in the second and third years of their service and in their second enlistments.

The percentages of desertions by branches of the service during the fiscal years 1905–1910 are shown in the following table:

Branches of service.	Percentages.					
	1910.	1909.	1908.	1907.	1906.	1905.
Field artillery	4.72	7.03	5.74	5.97	9.15	9.40
Coast Artillery Corps	4.30	5.50	3.93	6.58	7.79	8.03
Hospital Corps	3.15	4.18	4.55	4.18	5.17	4.06
Engineers	3.12	5.53	4.73	4.98	7.71	5.45
Infantry	2.99	4.26	3.90	4.62	6.10	6.33
Cavalry	2.97	4.76	5.68	6.25	7.23	6.46
All others, including unassigned recruits	5.21	5.48	5.42	7.19	12.61	6.44
The Army	3.66	4.97	4.59	5.62	7.43	6.79

The foregoing table shows a decrease in the percentages of desertions in every branch of the service. That decrease was most marked in the engineers and the field artillery. There was also a considerable decrease in the cavalry.

As in preceding reports, the percentages of desertions hereinbefore shown are based on the whole number of enlisted men who were in service at any time during the year, and not on an average enlisted strength. All the losses during the year are included in the basic figures used, and those figures represent the whole number of enlisted men who might have become deserters, or the whole number of enlistment contracts that might have been terminated by desertion, at some time during the year. It is clearly improper to use as a basis for calculating the percentages of desertions a strength obtained by averaging the number of men in service at the end of each month of the year—a number that does not include the men who went out of service during the year, and even does not include the deserters themselves. If, however, the average enlisted strength is used as a basis, it is found that the number of desertions from the enlisted force of the Army during the fiscal year ended June 30, 1910, was 4.64 per cent of that strength, as against 6.70 per cent during the preceding fiscal year.

The gratifying reduction in the desertion ratio, shown in this report, is undoubtedly due to the continuance of systematic and vigorous efforts, described in the last annual report, to apprehend and punish deserters. In pursuance of those efforts, the preparation and wide distribution throughout the country of circulars containing personal descriptions and reproductions of the photographs of deserters, together with an announcement of the rewards payable for their apprehension and delivery to the military authorities, were continued. Those circulars were widely distributed throughout the country to United States marshals, to police officers of the larger cities, to established detective agencies, to agents of the Secret Service Division of the Treasury Department and of the Bureau of Investigation of the Department of Justice, and especially to the civil peace officers in

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the vicinity of the homes of the deserters and in localities to which they were likely to go.

An examination of the returns for the fiscal year ended June 30, 1910, was made for the purpose of ascertaining what organizations serving and what posts located within the continental limits of the United States had the lowest and highest relative number of desertions. It should be borne in mind that, in the following paragraphs relative to organizations and posts that had the highest and lowest percentages of desertions, the organizations that served a part or the whole of the year in, and the military posts located in, Hawaii, Alaska, and the Philippine Islands were not taken into consideration, because in those distant and isolated regions it is next to impossible for a deserter to make good his escape from military control and, consequently, the numbers of desertions that occur there are so small as to be of no importance for the purposes of this report.

The regiments serving in the United States that had the lowest percentages of desertions during the year were the Twenty-fourth Infantry and the Tenth Cavalry, both of them being colored organizations. The desertions from those regiments were 1.33 and 1.52 per cent of the whole number of enlisted men in service, or of enlistment contracts in force, in those regiments during the year. In the field artillery branch of the service the Third Regiment had the lowest percentage of desertions of any regiment of that arm serving in the United States during the year, the desertions from that regiment being 4.66 per cent of the whole number of enlisted men in service in the regiment.

The regiments with the highest percentages of desertions were the Fourth Field Artillery, the Eighth Infantry, and the Fourth Cavalry. The desertions from those organizations were 7.71, 7.53, and 7.47 per cent, respectively, of the whole number of enlisted men in service, or of enlistment contracts in force, in each of those regiments during the year.

No desertions were reported during the year in the organizations shown in the following table:

Organizations.	Commanders.
Troop A, Third Cavalry	Second Lieut. David B. Talley.
	Capt. Casper H. Conrad, jr.
	First Lieut. William R. Taylor.
	Capt. Charles W. Van Way.
Troop F, Third Cavalry	First Lieut. William R. Taylor.
	Second Lieut. John A. Warden.
	First Lieut. Leon R. Partridge.
Troop M, Third Cavalry	First Lieut. E. Kearsley Sterling.
Troop F, Fourth Cavalry	Capt. George O. Cress.
Troop G, Seventh Cavalry	Capt. S. R. H. Tompkins.
Troop H, Eighth Cavalry	First Lieut. John T. Sayles.
Troop C, Ninth Cavalry	Capt. Willard H. McCornack.
	First Lieut. Robert Sterrett.
Troop G, Ninth Cavalry	Capt. Alexander L. Dade.
	First Lieut. Sherrard Coleman.
	Capt. John B. Christian.
Troop I, Ninth Cavalry	Capt. Charles Young.
Troop M, Ninth Cavalry	First Lieut. Casper W. Cole.
	Capt. Samuel B. Pearson.
Troop A, Tenth Cavalry	First Lieut. Walter J. Scott.
	Capt. William H. Hay.
Troop C, Tenth Cavalry	First Lieut. Albert E. Phillips.
	First Lieut. Bruce Palmer.
	Second Lieut. Allan M. Pope.
Troop G, Tenth Cavalry	Capt. Robert R. Wallach.
	Second Lieut. Edgar M. Whiting.
Troop M, Tenth Cavalry	Capt. Henry W. Parker.

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Organizations.	Commanders.
Troop A, Eleventh Cavalry	Capt. John T. Haines.
	Second Lieut. Horace M. Hickam.
Troop F, Eleventh Cavalry	Capt. John T. Haines.
	Second Lieut. Charles S. Jackson.
	First Lieut. Edward Davis.
	Second Lieut. Emmet R. Harris.
Troop M, Eleventh Cavalry	First Lieut. John A. Pearson.
	First Lieut. George Grunert.
Twenty-second Company, Coast Artillery Corps	Capt. Guy Cushman.
	Capt. Charles R. Lawson.
Thirty-first Company, Coast Artillery Corps	First Lieut. William Paterson.
Seventy-first Company, Coast Artillery Corps	Capt. Gwynn R. Hancock.
Seventy-third Company, Coast Artillery Corps	Capt. John T. Geary.
	First Lieut. Harry K. Rutherford.
	First Lieut. John S. Pratt.
Company H, First Infantry	Capt. Clarence G. Bunker.
Company B, Second Infantry	First Lieut. Henry M. Fales.
Company H, Second Infantry	Capt. Harrison J. Price.
	Capt. George C. Saffarrans.
Company I, Fifth Infantry	Capt. Peter E. Marquart.
	Second Lieut. Allan Rutherford.
Company K, Fifth Infantry	Capt. George D. Arrowsmith.
Company K, Eighth Infantry	Capt. Austin F. Prescott.
	First Lieut. Jennings B. Wilson.
Company E, Tenth Infantry	Capt. W. B. Gracie.
	Capt. James T. Dean.
Company L, Eleventh Infantry	First Lieut. R. G. Caldwell.
	Capt. Rufus E. Longan.
Company C, Thirteenth Infantry	First Lieut. Channing E. Delaplane.
	Capt. William M. Fassett.
	First Lieut. Leighton Powell.
	Second Lieut. Guy T. Rowe.
Company C, Twenty-fourth Infantry	First Lieut. Robert G. Rutherford.
Company E, Twenty-fourth Infantry	Capt. R. H. Peck.
	Second Lieut. Allen R. Williams.
Company K, Twenty-fourth Infantry	Capt. Robert J. Maxey.
Company M, Twenty-fourth Infantry	Capt. Charles E. Hay.
Company F, Twenty-sixth Infantry	Capt. George H. Knox.

The companies that had the highest desertion ratios, and their percentages of desertions, are shown in the following table:

Companies.	Percentages of desertions.	Companies.	Percentages of desertions.
Company B, Eleventh Infantry	17.35	Company B, Fifteenth Infantry	9.89
Company C, Twenty-eighth Infantry	15.91	One hundred and fifty-eighth Company, Coast Artillery Corps	9.80
Company B, Hospital Corps	14.01	Troop H, Fourth Cavalry	9.76
Troop K, Fourth Cavalry	14.00	Forty-third Company, Coast Artillery Corps	9.66
Troop M, Eighth Cavalry	13.95	Company A, Fifteenth Infantry	9.57
Troop A, Fourth Cavalry	13.41	Company H, Eleventh Infantry	9.52
Company B, Eighth Infantry	13.27	Battery F, Fifth Field Artillery	9.35
Company K, Twenty-eighth Infantry	12.36	Twenty-sixth Company, Coast Artillery Corps	9.22
Company G, Eighth Infantry	12.35	Company L, Twenty-eighth Infantry	9.20
Troop B, Fourth Cavalry	12.20	Twenty-eighth Company, Coast Artillery Corps	8.90
Sixty-eighth Company, Coast Artillery Corps	12.18	Company M, Eighth Infantry	8.89
Battery F, Fourth Field Artillery	11.80	Company I, Second Infantry	8.64
One hundred and tenth Company, Coast Artillery Corps	11.68	Company H, Fifteenth Infantry	8.64
Ninety-second Company, Coast Artillery Corps	11.19	One hundred and forty-eighth Company, Coast Artillery Corps	8.63
Battery C, Fourth Field Artillery	10.79	Company L, Eighth Infantry	8.54
One hundred and sixtieth Company, Coast Artillery Corps	10.27	One hundred and twenty-sixth Company, Coast Artillery Corps	8.45
Company A, Eighth Infantry	10.23	Troop M, Fourth Cavalry	8.43
Battery E, Third Field Artillery	9.94		

As in preceding years, it was found to be impracticable, because of the frequent changes in the personnel of troops at many stations, to ascertain definitely the whole number of enlisted men in service, or of enlistment contracts in force, at the several military posts during the year. However, it is possible to make an estimate of that

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number that will be sufficiently accurate for purposes of comparison. Taking that estimated number as a basis for the calculation for each post, it is found that the five posts having the highest percentages of desertions were as follows:

	Percentages.
1. Boise Barracks, Idaho	11.63
2. Fort Duchesne, Utah	11.00
3. Fort Meade, S. Dak	10.53
4. Fort Baker, Cal	9.51
5. Fort Rosecrans, Cal	9.24

The five posts having the lowest percentages of desertions were as follows:

	Percentages.
1. Fort Apache, Ariz	0.65
2. Fort Fremont, S. C	0.86
3. Madison Barracks, N. Y	1.40
4. Fort Mason, Cal	1.44
5. Fort Ontario, N. Y	1.52

Of the white troops 3.77 per cent and of the colored troops but 1.35 per cent were reported as deserters, as compared with 3.66 per cent for the whole Army.

The effect of the seasons of the year on the number of desertions is shown by the following table, which gives the percentages of desertions of enlisted men from the Regular Army in each month of the fiscal years 1908, 1909, and 1910:

Month.	Fiscal years.			Month.	Fiscal years.		
	1910.	1909.	1908.		1910.	1909.	1908.
	Per ct.	*Per ct.*	*Per ct.*		*Per ct.*	*Per ct.*	*Per ct.*
July	11.90	12.34	10.43	February	4.90	5.33	5.68
August	12.10	10.84	9.15	March	7.26	6.89	8.28
September	9.84	10.61	8.37	April	9.78	9.79	10.74
October	9.52	8.65	7.55	May	9.58	8.77	10.56
November	6.79	6.89	5.97	June	7.92	8.59	11.06
December	5.72	6.33	5.86				
January	4.69	4.97	6.35	Total	100.00	100.00	100.00

During the past fiscal year, as in the preceding year, relatively more desertions occurred in July and August than in any other month of the year. However, the relative frequency of desertions in the spring months that obtained in former years was noticeably absent in 1910 as it was in 1909.

That nationality is not an important factor in considering the subject of desertion from the Army was further emphasized by the fact that, during the past fiscal year, the ratio of foreign-born deserters to the whole number of deserters was approximately the same as the ratio of foreign born to the total among the original enlistments during the past three years. Of the men who deserted during the past fiscal year, 90 per cent were of native birth. Approximately 89 per cent of the original enlistments made during the past three years were men of native birth.

Reports of return of deserters to military control during the fiscal year ended June 30, 1910, were received in 2,066 cases, not including 10 cases found not to be amenable to trial because of the statute of limitations. Of the 2,066 deserters, before referred to, returned to military control, 712 (or 34 per cent) surrendered themselves

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and 1,354 (or 66 per cent) were apprehended. Of the latter number, 169 (including those identified by finger-print records in The Adjutant-General's Office) were apprehended by the military authorities, 621 by municipal police, 266 by sheriffs and other county officers, 26 by United States marshals, 21 by railroad police and special agents, 5 by United States immigration officials, 4 by officials in charge of jails, reformatories, and penitentiaries, 213 by private detectives and detective agencies, 13 by State detectives and other State officers, 7 by naval authorities, and 9 by civilians (not civil officers). It will be seen from the foregoing figures that, of the whole number of deserters from the Army apprehended during the year, 46 per cent were apprehended by municipal police, 20 per cent by county officers, 13 per cent by the military authorities, and 16 per cent by private detectives and detective agencies.

The following table shows the disposition of the cases of the 2,066 men returned to military control during the fiscal year ended June 30, 1910:

Disposed of without trial:		
Charge removed as erroneous under paragraph 130, Army Regulations	160	
Restored to duty	19	
Discharged without honor	67	
Discharged for disability	2	
Escaped while awaiting trial	20	
Killed by sentinel while attempting to escape	1	
Released through error	1	
		270
Tried by court-martial:		
Acquitted	6	
Convicted of absence without leave and retained in service	360	
Convicted of absence without leave and dishonorably discharged	130	
Convicted of absence without leave and sentence mitigated	37	
Convicted of absence without leave, sentence disapproved by reviewing authority	3	
Convicted of desertion, sentence disapproved by reviewing authority	12	
Convicted of desertion, sentenced to dishonorable discharge, but sentence mitigated by reviewing authority	24	
Convicted of desertion, sentenced to confinement, and retained in service	1	
Convicted of desertion, without sentence of confinement	1	
Convicted of desertion, sentenced to confinement, and dishonorably discharged	1,169	
		1,743
Reports of results of trial not yet received		53
Total		2,066

It will be seen from the foregoing table that, of the men tried by general courts-martial on the charge of desertion, 444 were retained in service and 1,299 were dishonorably discharged. The lengths of sentences of confinement in cases of men held to service are shown in the following table:

Less than one month	44
One to three months	168
Four to six months	163
Seven to twelve months	1
Total	376
No sentence of confinement	68
Aggregate	444

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The lengths of sentences of confinement in cases of men dishonorably discharged are shown in the following table:

Less than three months	8
Three to six months	120
Six to twelve months	32
Less than one year	160
One year	130
One year and a half	302
Two years	371
Two years and a half	110
Three years	168
Four years and over	39
Total	1,280
No sentence of confinement	19
Aggregate	1,299

Of the 444 men tried for desertion and retained in service, 400 were found guilty of absence without leave, 38 were found guilty of desertion, and 6 were acquitted. Of the 400 men found guilty of absence without leave, 360 were retained in service pursuant to the sentences of courts-martial, and 37 were sentenced to be dishonorably discharged, but the sentences were either disapproved or mitigated by the reviewing authorities. Of the 38 men found guilty of desertion, 36 were sentenced to be dishonorably discharged, but the sentences were either disapproved or mitigated by the reviewing authorities. Two men were found guilty by the court and retained in service pursuant to its sentence. In one of those cases the deserter was sentenced by the court "To forfeit ten dollars of his pay per month for the period of eighteen months, and to have stopped against his pay the amount paid for his arrest and all costs of his delivery to military control." The sentence did not carry with it any confinement, and, as was to be expected, the man deserted again.

Of the 444 men who were retained in service after having been tried for desertion, 100, or 22.5 per cent, have already deserted since their trial. Some of the men so retained in service were not tried until near the end of the fiscal year, and the comparatively short sentences of confinement imposed in their cases have not been completed. When they have all had an opportunity to desert again, the percentage will of course be much larger than that given above.

Of the 6 men who were acquitted and restored to duty without punishment of any kind, 4 have already deserted since acquittal.

It is evident that, in the cases of men tried for desertion, the findings and sentences of general courts-martial are sometimes wholly inadequate. For example, in the case of a man who was apprehended at a place more than 1,400 miles from the station of his company, after an absence of more than eleven months, the court imposed a sentence of confinement for three months with forfeiture of $10 a month of his pay for the same period and a stoppage of the $50 reward paid for his apprehension. In another case, with practically the same conditions as to period of absence and distance from post when apprehended, the court found the man guilty of desertion and sentenced him "To be confined at hard labor under charge of the post guard for six months and to forfeit his pay for the same period." A sentence of confinement for two months was imposed by the court

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in the case of a man apprehended more than 200 miles from the station of his company. The sentence was remitted by the reviewing authority; the man again deserted after his restoration to duty, and he is now a deserter at large.

In some cases the courts-martial find the accused guilty of the specification "except the words 'was apprehended,' substituting therefor the words 'did surrender himself to the civil authorities,' of the substituted words guilty, and of the excepted words not guilty." This is done apparently with a view to afford a reasonable basis for dealing leniently with the accused, who in many cases, as appears from the reports of return to military control, were unquestionably apprehended by the civil authorities.

It may be interesting as well as instructive to compare the percentages of desertions from the United States Army and Navy and the British Army. Such a comparison may well be made, because all those services have much in common, in that they are all maintained by voluntary enlistments, that all of them have a system of retirement, or pension, at the expiration of a definite period of service, and that in each of their respective countries the popular feeling with regard to desertion is much more tolerant than it is in other countries in which universal military service is compulsory, and in which such service is regarded as the first duty of the citizen, desertion is looked upon as a crime, and the concealment or escape of a deserter is almost impossible.

The following table, compiled from the latest accessible reports, shows the percentages of desertion from the United States Army, the United States Navy, and the British Army, those percentages being based upon the total enlisted strength except in the case of the British Army, in which the percentage is based on the average strength, the total strength not being ascertainable from the report consulted:

PERCENTAGES OF DESERTIONS.

United States Army (year ended June 30, 1910):	
Total	3.66
White troops	3.77
Colored troops	1.35
United States Navy (year ended June 30, 1909)	5.50
British Army (year ended September 30, 1909)	1.18

In compiling the foregoing table no account was taken of the number of deserters apprehended or otherwise returned to military control, because it is the object of the table to show, for the several services, the relative frequency of the occurrence of desertion, and not the disposition made of deserters after their return to military control. The reports for the British Army show, in addition to the actual number of desertions, the "net loss" after taking into account the number of deserters returned to military control. If the same practice with regard to desertions and reports of desertions prevailed in our services, of course those services would show a "net loss" from desertion that would be much less than the loss that is now shown by our reports.

It has been urged by critics of our own military administration that the low desertion rate of the British Army is due to the leniency with which desertion is treated in that army, and that if deserters from our Army were treated with equal leniency our desertion rate

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would be correspondingly lower. This argument is specious, and those who advance it ignore the wide difference that exists between the enlisted men of the two countries in respect to their adaptability to the discipline and restraints of the military service, their early environment and training, their habits of respect for and obedience to superior authority, and their opportunities for securing more agreeable or better paid employment by desertion. It is well understood by those who know the facts that the reason why desertion is treated so leniently in the British Army is because it occurs so infrequently, and not because leniency of treatment of deserters diminishes desertion.

It will be seen by the foregoing table that the desertion rate of our colored troops compares favorably with the very low desertion rate of the British Army, and that both of these rates are very much lower than the desertion rate of our white troops. Inasmuch as our colored soldiers, including those who desert as well as those who do not, are treated in every way precisely the same as our white soldiers, it is evident that this treatment is not a cause of desertion among them, and that the reasons for their very low desertion rate are substantially the same as in the case of the British soldier. In this connection, a remark made by Secretary of War Proctor, in his report for the year 1889, is pertinent. In speaking of the difference between the white and colored enlisted men of our Army in the matter of desertion, he said: "To the colored man the service offers a career; to the white man too often only a refuge."

Other critics of our military administration, especially of the recently adopted policy of pursuing all deserters vigorously and bringing them to punishment if possible, have predicted that such measures would be ineffective in the way of lessening desertion, and have urged that the true remedy is to make the military service so attractive that men will not be disposed to desert; also that most deserters are "young and thoughtless" and that when returned to military control, either voluntarily or involuntarily, they should be restored to duty with little or no punishment and thus have an opportunity to "redeem themselves."

To all this it is only necessary to say that for many years the War Department and the Army made no systematic or energetic efforts to apprehend deserters, and that the result of this policy was an enormous number of desertions annually; that no material decrease in this number was brought about, notwithstanding the many measures that were instituted in order to make the soldier's life agreeable and attractive to him, until the present policy of pursuing and punishing deserters was adopted; that under the operation of this policy the number of desertions was reduced during the past year from about 5,000 for the previous year to less than 3,500 for the year covered by this report, or more than 30 per cent below the number for the previous year, the desertion rate for the last fiscal year falling below that recorded at any time during the past eleven years; that the number of desertions is still decreasing steadily, and that this decrease bids fair to continue if no change in the established policy with regard to deserters is made. In this connection it is worthy of note that of the large number of men who were retained in service after trial for desertion during the past fiscal year nearly 23 per cent have already deserted since their trial, and that it is certain that many of the remainder will desert as soon as they find an opportunity to do so after their release

from the short terms of confinement that have prevented their deserting sooner.

It should also be said that it is no more reasonable to restore the "young and thoughtless" deserter to a status of honor in a service that he has once disgraced by desertion, and that he will be very likely to disgrace again in the same way, than it would be to restore the young and thoughtless criminal in civil life to a position in which he would have both temptation and opportunity again to rob the same till, to embezzle funds from the same source, to forge the same employer's name, or to recommit any other offense of which he may have been guilty. The deserter and the civilian criminal alike are pursued and punished, not through vindictiveness toward them, but for the deterrent effect that such pursuit and punishment will have upon other possible or would-be criminals. That the present policy of the War Department with regard to deserters has had such a deterrent effect throughout the Army has been clearly shown by the marked reduction that was effected in the desertion rate during the past fiscal year, and that is still in progress.

In this matter of desertions, the condition that confronts us has long been, and still is, a very grave one. It cannot be met successfully by a display of that sentimentality that would coddle and pamper the would-be deserter into an observance of his solemn oath of enlistment, or that would restore the convicted deserter, whether young and thoughtless or old and depraved, with little or no punishment to a status of honor in a service and under a flag upon both of which he has brought discredit by his desertion. The military crime of desertion can be combated successfully, in our Army at least, only by the enforcement of measures that have proven successful in combating crime in civil life, and these measures invariably include the systematic and vigorous pursuit of criminals and the just enforcement of the law with regard to them. It is not contended here that clemency should never be extended to a deserter, but it is contended that it should not be extended to him at the expense of keeping him in or restoring him to a status of honor in the Army, and thereby giving widespread encouragement to other men to yield to the temptation to desert. The Army is not a reformatory for its own criminals or for criminals from civil life, and it cannot be made one without doing great damage to the service. If clemency is to be shown to the convicted deserter because of his youth and inexperience or for any other reason, it should be shown to him after he has been separated from the military service and after he has suffered some material part of the punishment to which he became subject by reason of his conviction and sentence.

The views set forth by the Judge-Advocate-General of the Army in an opinion rendered by him December 18, 1909, and published to the Army in War Department Circular No. 91 of that year, relative to the treatment of deserters with undeserved leniency, are so pertinent to the subject that those views may well be repeated here. He said:

The idea underlying the policy of the Department, and which warrants the very considerable expenditure which is involved in its execution, is that extraordinary efforts should be put forth with a view to secure the apprehension and return to military custody of *all* deserters; in other words, to make apprehension so certain and inevitable as to deter a soldier, who is weighing the chances of arrest and punishment, from committing the offense. To the success of the efforts so put forth, it is in the highest degree essential that in all cases of desertion like that in reference, the offender should

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be brought to trial and, upon conviction of that offense, an adequate punishment should be imposed. *Certainty of apprehension and punishment should be in the mind of every soldier who contemplates an act of desertion.*

* * * * * * *

It is difficult to escape the conclusion that cases like that disclosed in the papers in reference are calculated to defeat the efforts which are being put forth by the Department with a view to diminish the frequency of desertions. The apprehension of men absent in desertion, or their surrender after so prolonged an absence, as in the case of * * *, and their subsequent restoration to military jurisdiction, will avail little if, when such restoration has been accomplished, their cases are not made the subject of legal adjudication with a view to obtain, not only the punitive but the deterrent effects that ensue upon a firm and uniform resort to appropriate measures of discipline. *The soldier who finds an inducement to desert in the diminished probability of apprehension, will find an equal inducement in the hope that, in the event of surrender he will encounter no serious obstacle in securing his restoration to duty without trial.*

In the same paper, after quoting from the last annual reports of the Secretary of War and The Adjutant-General of the Army paragraphs in which were expressed very positive views adverse to the policy of restoring deserters, even the young and inexperienced, to a status of honor in the Army of the United States, the Judge-Advocate-General said:

The views entertained by the Secretary of War and The Adjutant-General are so cogent and convincing as to make further discussion unnecessary, or to do more than suggest that these views be communicated to those upon whose efforts, in furtherance of its policy in that regard, the Department confidently relies for that constant and abiding support, without which the efforts put forth by the Department with a view to diminish the evil of desertion will be without avail.

It is believed that the publication to the Army of the views set forth by the Judge-Advocate-General in the opinion before quoted has materially lessened the number of cases of exhibition of undeserved and ill-advised leniency toward deserters. And the correctness of those views has been fully demonstrated, if any demonstration was needed, by the very gratifying reduction that was effected in the desertion rate of the Army by the vigorous enforcement of a policy in full accordance with the views expressed by the Judge-Advocate-General.

It is evident, however, that both courts-martial and reviewing authorities do not yet appreciate fully the impetus that is given to desertion, and the consequent injury that is inflicted upon the service, by the restoration of deserters to a status of honor in the Army, either with or without a certain amount of preliminary punishment. This is shown by the considerable number of such restorations that took place during the past fiscal year. It is possible that both courts and reviewing authorities have been impressed by the argument, commonly advanced by those who favor such restorations, to the effect that the young and inexperienced soldier who deserts does not fully understand the gravity of his offense or the danger to which it subjects him; and that the treatment of the offenders in such cases should be corrective rather than punitive. But this argument is based upon incorrect premises and is fallacious.

It is not a fact that any young soldier who has intelligence enough to have passed the rigid recruit examination does not fully understand the serious nature of desertion and its consequences. On the contrary, from the very commencement of a young soldier's service at the recruit depot, all these things are repeatedly and forcefully impressed upon him not only by the commissioned and noncommissioned officers in charge of him, but by his more experienced comrades

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as well. Any recruit who has passed through the present course of instruction at depot and has been a month in the ranks after assignment to a command knows what desertion means and what its consequences are as well as the oldest soldier in the Army knows them. It is not because of lack of understanding that the young soldier deserts, but it is because he, like the young and undisciplined civilian, yields to criminal impulse more readily, and is more reckless of consequences, than the older and better disciplined soldier or civilian.

And it is not a fact that the pursuit and punishment of deserters are to be urged or defended because of either their punitive or corrective effect upon the deserters themselves; they are to be urged and defended solely because of their deterrent effect upon others. If the desertion rate of our Army as a whole were as insignificant as that of our colored troops, or as that of the British Army, we might well ignore the deserter altogether and consider the service well rid of him, at least in time of peace. But because of the disgracefully high desertion rate that prevailed among our white troops for many years during which no especial efforts to apprehend and punish deserters were made, and that showed no signs of diminishing until the present policy of pursuing and punishing deserters was adopted, it is evident that we can not ignore the deserter while at large or treat him with undue leniency after his apprehension or surrender.

The inadvisability of restoring either apprehended or surrendered deserters to duty and to a status of honor in the Army is conclusively shown by the record, hereinbefore set forth, from which it appears that of 444 men who were retained in service after trial during the past year for desertion, 100, or nearly 23 per cent of the whole number, have already deserted during the short time that has elapsed since their conviction. And it is certain that many more of the original 444 will desert as soon after the expiration of their terms of confinement as they find good opportunities to do so. It is clear that these deserters for the second time showed no appreciation of the clemency shown them and no desire to redeem themselves by faithful service. It is also clear that undeserved clemency shown in such cases can not fail to have a very injurious effect upon the service at large in the way of encouraging other would-be deserters to take the step that they would not dare to take if they were convinced that in the event of their desertion and subsequent capture they could not hope for any action by courts-martial or reviewing authorities that would enable them to escape the full punishment that desertion deserves or that would permit of their ever being restored to the honorable status of a soldier in the Army of the United States.

The treatment of the deserter should not be governed either by vindictiveness toward him or by a weakly sentimental regard for his interest. It should be governed chiefly if not entirely in the interest of the military service, and it is certain that a due regard for that interest will not permit of the restoration of deserters to a status of honor in a service upon which they have brought discredit by their desertion from it. Whatever clemency is to be shown them, and undoubtedly there are many cases in which clemency may well be shown, should be extended to them outside the Army and after they have been relegated to a civil status.

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So much has been said untruthfully by the apologists of desertion concerning the life of the enlisted man in our Army, and the humiliations and hardships to which it is alleged that he is submitted, that it is believed to be appropriate to quote in this connection the following communication written by an enlisted man in the Army, First Sergt. Henry S. Sullivan, Company B, Eighth United States Infantry, and published in the New York Sun of September 23, 1910, in reply to a particularly sensational and misleading magazine article with regard to the subject in question. Following is a copy of that communication:

TO THE EDITOR OF THE SUN.

SIR: Let me take up for consideration Mr. ———'s brief against the Army. The photographs depicting "the life of the average recruit as one studied round of monotonous and uncongenial tasks, the parts played by the army mule in the training of enlisted men, the digging of ditches in the blazing sun," &c., ad nauseam, are all cunningly contrived to convey to the mind of the layman a false idea of the normal life of the soldier. Mr. ——— has published photographs of convicts and other classes of prisoners engaged at hard labor serving out sentences of courts-martial in punishment for various crimes, to illustrate the daily occupations of the soldier. He says that the present liberty of the recruit is circumscribed by a man with a gun, and to bolster up this false statement supplies a photograph of a prisoner with his guard. The man with the gun in the foreground is the guard, and, in all probability, the canvas coat worn by the prisoner will reveal upon close examination the badge of disgrace in the Army, the large letter P. Mr. ——— omits the information that these prisoners are debarred from performing the honorable duties of the soldier, from sharing with him the social life of the company and the post; that they are a class apart and undergoing terms of confinement, and that their status is considered, for the time being, as on a par with that of the criminal in civil life who is debarred from the exercise of the ordinary duties of citizenship while undergoing punishment.

As for the wild statement that the most important part of the soldier's training from the point of view of the post commander is digging ditches, sweeping walks, &c., it should be dismissed with the contempt it so richly deserves. In these days of standardization, the exacting requirements of modern military training and the frequent unheralded visits of War Department inspectors to see that the details of training are carried out to the letter, the post commander is permitted very little latitude to give play to any personal idiosyncracies of his in the matter of landscape improvements. As a matter of fact, more than 90 per cent of the policing and scavenging in an army post is performed by prisoners.

Another fruitful source of desertion, we read, is the hike over a dusty road in the dog days. I have before me as I write the itinerary to be followed by my regiment in its annual practice march, commencing next week. The total distance is 200 miles, to be covered in seventeen days, or by fifteen marches, making the length of the average march some thirteen miles, surely not enough to overtax the strength of a boy scout. Many "girls' walking clubs" will exceed this distance during their summer outings, and the same itinerary will hold good for most of the other army organizations during the present summer season. Will this heartbreaking performance daunt the soul of our "valiant private" and force him to desert? If my experience counts for anything, I am sure that it will not. The true explanation of the preponderance of desertions in summer is that existence for the deserter presents fewer and simpler problems in summer than it does in the winter season. The man who will think twice before quitting his comfortable quarters in winter time, without a dollar in his pocket for food, takes to the highways during the dog days without a moment's hesitation, whether in funds or not.

The soldier is not driven to take to the long white road by the grubbing of acres of brush under blazing suns or the cleaning out of ill smelling stables. I want to go on record here to the effect that during a service of eighteen years as an enlisted man in three different regiments, I have not seen the soldier clear more than an acre of ground of brush altogether, nor have I seen the man who objected to grooming his horse even on a summer day.

This brings me to the last straw in the burden of the long suffering soldier. The heartless tyranny of the War Department has found expression in a novel form of torture, "mugging." I have been "mugged," I am acquainted with hundreds of soldiers who were measured and photographed, and I have yet to hear of a man, not a convict, who did not acquiesce in the necessity of the process. The recruit who voluntarily

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takes the oath of enlistment with a clear mental reservation to desert is the man who criticises the "mugging process." To the honest soldier it is really a matter of little moment and he forgets all about it the next day. I have a strong suspicion that our author culled his data on "mugging" from the same tainted sources where his information on ditch digging, &c., originated, from the criminals in military prisons, who have the greater reason to fear it.

There remains the dish washing question for our consideration, before we finally dismiss Mr. ———. I hope that some day the Government will put its soldiers up at hotels and provide a corps of waitresses to wait upon the gallant boys at table, wash their dishes, pass them the finger bowls, &c.; this in the halcyon time when our fellow citizens shall have solved the domestic servant problem. In the meanwhile, we soldiers must wait upon each other at table when our turn comes around and perform for ourselves the humble but very necessary duties that Bridget, Hilda and Freda perform for our civilian neighbors. Each private soldier takes his turn at this duty about twice each month, the work occupying him some six hours daily, or a total of twelve in the month is spent as waiter and dishwasher.

What does the Army promise the young enlisted man, and is this promise performed? The Army accepts the recruit for a term of enlistment of three years, undertaking to train him during this time in the basic duties of citizenship, and pays him, in most instances, a higher wage than he could command in civil life, with promise to return him to his home upon the expiration of his contract, or earlier, if certain legal formalities are complied with, a better man, a more useful citizen, a more intelligent supporter of our republican institutions and their perpetuation. The payment of cash for discharge by purchase is waived by the Government in many deserving cases and every facility is offered to the recruit to leave the service in a legal manner if he becomes dissatisfied with a soldier's life.

Now as to the manner in which the Army fulfils its part of the contract. The training of the recruit is progressive and proceeds along physical and mental lines. All posts have gymnasiums completely equipped with apparatus and athletic fields for outdoor track work and baseball. The daily drills of the command also aim to develop the physical side of the soldier. Specialization is not encouraged; rather the object aimed at is his symmetrical development. Track competitions are held at intervals and prizes awarded for excellence in the different events. To provide for mental training there are schools, lectures delivered by his officers during the drill hours, and libraries. The soldier is encouraged in every legitimate manner to take up a correspondence course or some other line of mental improvement. More than half of each day is his own for self-improvement, or if his bent is in that direction for self-indulgence.

The immediate purpose of this training is character building, the ultimate aim the development of the military, that is to say, the virile virtues, until their exercise becomes habitual. The result attained by this training is the modern rifleman and the scientific gun pointer of our coast batteries and our warships, men who must essentially possess the physical and mental powers in fine adjustment, the ability instantly to coordinate eye, brain and finger in order to achieve a desired result.

The fact is daily impressed upon the recruit's attention that the material rewards in his profession are not for the man of soft moral fiber and weak character. The increased pay and prestige which reward excellence in marksmanship, promotion to the noncommissioned grade and the various desired details, are exclusively for the men who move fastest along the lines of training prescribed. Our recruit is paid $15 per month to commence with; this, be it understood, in addition to his living expenses. It could easily represent a saving of $12 each month if the man were possessed of frugal habits. At the present cost of food and clothing it represents a monthly wage of $40 or better; higher than the average wage paid to young men of his age throughout the United States. If the man has progressed rapidly his pay should be $18 per month in the second year, the increase being a reward for ability to make good use of his rifle. At the beginning of his third enlistment his instruction should commence to bear fruit, and under operation of the progressive training he has received he should have been promoted either to corporal at $24, sergeant at $33 or first sergeant at $48 or $50 per month. His allowance for clothing is ample and most men save a considerable portion, which is paid them in cash upon discharge.

Now in the matter of "servile duties," candor compels me to say that I know of none that falls to the soldier's lot. The farmer who grooms his horse, the business man sprinkling his lawn and working in his garden before or after office hours or shovelling snow from his doorstep, doubtless would not relish the implication that he was engaged in the performance of servile duties. Sometimes when the number of prisoners at a post is insufficient for these duties, the task of caring for the grounds, collecting stray leaves, windfalls, paper, &c., devolves upon the soldier to some extent. Each man only does his part in beautifying the surroundings of his home, where he lives, and

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promoting its sanitation, and it is difficult to understand the attitude of mind or snobbishness which classes such duties as servile and degrading, when all rightly constituted men acknowledge the dignity of manual labor. In my company this work falls to the lot of the soldier not oftener than one day in the week, generally three times a month. I feel safe in saying that the business man in moderate circumstances puts in more real hard work in his garden in a week than soldiers engaged on the same work do in a month.

Enough has been said to show that in the discussion of desertion our investigation must be directed to causes extraneous to the Army itself. It grieves me to say that here is where we ought to hang our heads in shame, or better still, take the manlier course and face the facts squarely and honestly, distasteful as they prove to our self-love and humiliating to pride. Despite the rigid examination to which the recruit is subjected at enlistment, many mental weaklings and moral cripples slip past the recruiting officer into the Army. Little blame can attach to these unfortunates; they merely made an unwise choice of parents and the curse of failure was laid on them at the very beginning. To achieve a creditable result here, the Army ought to have begun with the grandparents. We must bring ourselves to acknowledge sooner or later that the shame lies with the early training of the boy in home and school; in the defects inherent in our system of primary education. False standards of success are held up for his childish emulation; his energy is frittered away on a dozen subjects at school and he learns none thoroughly; he is indulged, spoiled, and encouraged to develop into a youthful egotist, a law unto himself. The result has been in his case, superficiality, not depth; diffusion, not concentration; anarchy instead of order. He was taught to value the shadow rather than the substance; to prefer temporary advantage to permanent gain, and in his home he observed very early in life how the still small voices of duty and obligation, respect for law, reverence for authority, were all swallowed up in the insistent and blatant clamors of the market place.

We have now arrived at the nub of the whole matter. The early education of our recruit has been feminine, and feminism explains the marked and ingrained lawlessness, inefficiency, and instability of purpose, which characterize so many of the recruits presented to the recruiting officer. From this class our deserters are mainly recruited, the feminine influence regarding very lightly an offense which masculine opinion has ever severely condemned.

In these days when the forces of disintegration threaten the foundations of the republic, and the education of the schools is not constructive but more destructive every year, the Army with its high traditions of service and duty is a "tower of strength" to those observant men who read the signs of the times. I take comfort in the hope that its gospel of plain living and high thinking, of the value of simple things, of unselfishness, and of the sanctity of obligation, will yet win the nation back from its worship of false gods, and leaven our fellow citizens with the obligation of social service and a higher patriotism.

HENRY S. SULLIVAN,
First Sergeant, Company B, Eighth Infantry.

PRESIDIO OF MONTEREY, CAL., *September 15.*

DISCHARGES OF ENLISTED MEN ORDERED BY THE WAR DEPARTMENT.

The following table shows the number of discharges of enlisted men ordered by the War Department during the fiscal year ended June 30, 1910, with the reasons for discharge:

On account of fraudulent enlistment	40
On account of desertion	67
On account of desertion and fraudulent enlistment	1
On account of imprisonment under sentence of civil court	105
On account of having become disqualified for service through own misconduct	64
In the interest of the United States	20
To enter the Soldiers' Home	7
By purchase, under General Orders, No. 13, War Department, 1909	629
By favor, under paragraph 9, General Orders, No. 13, War Department, 1909	82
For other reasons, under paragraph 148 (*e*), Army Regulations	1
On certificate of disability after admission to the Government Hospital for the Insane	79
Total	1,095

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DISCHARGES ON SURGEON'S CERTIFICATE OF DISABILITY.

With a view to reducing as much as possible the loss of trained soldiers to the Army resulting from the large number of discharges on surgeon's certificate of disability, and the consequent great expense involved in the enlisting, subsisting, transporting, clothing, and training recruits to fill the places of men discharged, a radical change in the method of discharging enlisted men for disability was adopted. The new method of discharging enlisted men on surgeon's certificate of disability is fully set forth in General Orders, No. 174, War Department, August 12, 1909.

During the fiscal year ended June 30, 1910, 1,053 enlisted men, including the 79 enlisted men discharged after admission to the Government Hospital for the Insane, as shown in the preceding section of this report, were discharged on surgeon's certificate of disability. During the preceding fiscal year 1,263 enlisted men were so discharged.

Since the general order before cited was placed in operation, 678 enlisted men were recommended by post surgeons for discharge on surgeon's certificate of disability, and were ordered before boards of medical officers convened under the provisions of that order. Of those 678 men, 580 were discharged on the certificates prepared by the post surgeon; 69 were discharged on new certificates prepared by the boards; and 29 were retained in service.

An examination of the records was made to ascertain how many discharges on surgeon's certificate of disability were reported to have been made because of disabilities that existed prior to enlistment. From that examination it appears that 318 of the 1,053 discharges on surgeon's certificate of disability made during the past fiscal year were based on disabilities that existed prior to enlistment. Of the 1,263 enlisted men discharged on surgeon's certificate of disability during the preceding fiscal year, 651 were discharged because of disabilities that existed prior to enlistment.

DISCHARGES BY PURCHASE.

The regulations under which discharges by purchase can be obtained by enlisted men are fully set forth in General Orders, No. 13, War Department, January 25, 1909.

In addition to 629 discharges by purchase ordered by the War Department, 2,370 discharges were ordered by the commanding generals of the several military departments under the provisions of the general order before cited, making a total of 2,999 discharges by purchase during the fiscal year ended June 30, 1910.

The table following shows the number of applications for discharge by purchase during the fiscal year, the number acted on by the commanding generals of the different military departments, the number transmitted to the War Department for action, and the disposition that was made of the applications.

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Departments.	Number of applications for discharge by purchase.	Discharges ordered.	Applications disapproved.
Department of the East	900	889	11
Department of the Gulf	251	239	12
Department of the Lakes	192	187	5
Department of the Missouri	372	350	22
Department of Dakota	117	101	16
Department of Texas	147	131	16
Department of the Colorado	77	67	10
Department of California	200	195	5
Department of the Columbia	186	168	18
Department of Luzon	24	22	2
Department of Mindanao	14	13	1
Department of the Visayas	8	8	.....
Total	2,488	2,370	118
Applications transmitted to the War Department	679	629	50
Aggregate	3,167	2,999	168

The number of discharges by purchase (2,999) during the fiscal year ended June 30, 1910, was much larger than the number (1,769) discharged by purchase during the preceding fiscal year. During the fiscal year ended June 30, 1908, the discharges by purchase numbered 1,123.

In discussing the subject of discharges by purchase, Brig. Gen. Frederick A. Smith, commanding the Department of the Missouri, in his annual report for the past fiscal year, says:

It is believed that many of the applications for discharge by purchase under the liberal provisions of General Orders, No. 13, War Department, 1909, providing for the discharge by purchase of enlisted men who have completed one year's service, were based upon misrepresentations. It is difficult to determine whether the reasons given are such as to entitle the applicant to discharge, but it has been the policy to give the applicant the benefit of any reasonable doubt.

Investigation has shown that in some cases the correspondence submitted in support of the application, offering positions at higher wages, was fictitious.

Applications have been made for discharge for the purpose of engaging in business in the vicinity of the stations of applicants, and applicants have no trouble in securing authentic offers of employment at more lucrative wages, as a basis for their applications, but it has been observed that in some cases this has proved merely a subterfuge for securing their discharge, and within a short period of time they have reenlisted in some other organizations.

He recommends that no reenlistments of men so discharged be made until one year after the date of discharge by purchase, and expresses the opinion that such discharges should be limited to the first enlistment period, except under most exceptional circumstances, in order to afford a means of release without resorting to desertion of those who find the service distasteful.

THE ADJUTANT-GENERAL'S DEPARTMENT.

On June 30, 1909, there were 24 officers in the Adjutant-General's Department. During the year 2 officers were detailed to that department from the line of the Army and 2 were relieved from detail, leaving a total of 24 officers in the Adjutant-General's Department June 30, 1910.

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On the latter date 5 of those officers were on duty in the Philippines Division, 11 were on duty in the several military departments, 6 were on duty in The Adjutant-General's Office, and 2 were on leave of absence.

THE MILITARY ACADEMY.

On July 31, 1910, the date of the superintendent's last annual report, there were under assignment to duty at the United States Military Academy 93 commissioned officers (including 8 professors, 1 acting professor, and 2 associate professors), 1 librarian, 1 master of the sword, 1 chaplain, 2 contract dental surgeons, 1 teacher of music, 4 civilian instructors in languages, and 3 civilians employed as instructors in fencing, broadsword exercises, and military gymnastics, a total of 106. This is a decrease of 5 in the number under assignment to duty at the United States Military Academy since August 31, 1909, the date of the previous report. That decrease was caused by the relief during the year of 5 commissioned officers who were on temporary duty at the academy.

Because of the expiration of his tour of duty, Col. Hugh L. Scott was relieved as superintendent of the United States Military Academy August 31, 1910, by Maj. Gen. Thomas H. Barry.

With a view to increase the strength of the Corps of Cadets it was provided in the act of Congress approved April 19, 1910 (36 Stat. L., 323), that "Hereafter, for six years from July first, anno Domini nineteen hundred and ten, whenever any cadet shall have finished three years of his course at the United States Military Academy, his successor may be admitted to the academy; and the Corps of Cadets is hereby increased to meet this provision." That legislation will undoubtedly result in a material increase in the strength of the Corps of Cadets, but it cannot be determined in advance how much of an increase will result therefrom.

At the date of the preceding report of the superintendent, August 31, 1909, there were 411 cadets on the rolls of the academy, including 5 foreign cadets, 2 of whom were from Costa Rica, 1 from Venezuela, 1 from Cuba, and 1 from Ecuador. Since September 1, 1909, 52 cadets were discharged for deficiencies in studies or for physical disability, 4 resigned, 2 were dismissed, 1 died, and 83, including 1 foreign cadet, from Costa Rica, were graduated. In March, 1910, 144 cadets were admitted, including 2 reappointed cadets, and also including 1 foreign cadet, from Cuba.

The usual examination of candidates for admission to the Military Academy was held at various military posts, beginning January 12, 1910. Including the principals and alternates, and also 21 former cadets, 505 candidates were designated for this examination. Of that number, 114 failed to report, 11 failed to complete the examination, and 222 were rejected upon mental or physical examination, or upon both. There were no vacancies for 5 alternates who qualified, appointments were canceled in 2 cases and were declined in 8 cases. The remaining 143 candidates were appointed and admitted to the academy in March, 1910. In addition to these, 1 foreign cadet, from Cuba, was admitted, making a total of 144 cadets admitted during the year.

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On July 1, 1910, there were 413 cadets on the rolls, including 5 foreign cadets, 2 of whom were from Cuba, 1 from Costa Rica, 1 from Ecuador, and 1 from Venezuela. Those cadets were divided among the four classes as follows: First class, 85; second class, 96; third class, 101; fourth class, 131. Three former cadets were admitted in August, 1910, making a total of 416 cadets at the Military Academy September 1, 1910.

The superintendent of the academy, in his annual report, again invites attention to the relatively large number of principals and alternates designated who failed to report for examination, and to the fact that the Corps of Cadets is far below its authorized strength. He refers to the legislative provision, effective July 1, 1910, for the enlargement of the Corps of Cadets, and expresses the belief that a much larger class will report at the academy next year.

The general health of the Corps of Cadets during the year is reported to have been excellent. A slight increase in the percentage of admissions to sick report on account of malaria is reported, but the cases are said to have been of a nonmalignant type. No infectious diseases are reported to have occurred among the cadets. One case of typhoid fever, contracted by a soldier while absent from the post on detached service, is reported to have occurred among the enlisted men of the military academy detachments. Cases of infectious diseases—chicken pox, diphtheria, measles, mumps, scarlet fever, and typhoid fever—are reported to have occurred among the civilian residents of the post during the year. One death is reported to have occurred among the cadets, the result of an accident in a football game. No deaths are reported to have occurred among the officers and enlisted men on the active list serving at the post, but one retired enlisted man is reported to have died at the Military Academy during the year.

It is reported that the cadet mess has maintained its high state of efficiency and that, notwithstanding the rise in the cost of labor and food products throughout the country, the cost for each cadet has only increased 1 cent a day, while the service and food have apparently been the same. The average cost of subsisting cadets is reported to have been 67 cents a day, as compared with an average cost of 66 cents a day during the preceding year.

The discipline of the Corps of Cadets is reported to have been in general satisfactory. The superintendent of the academy reports that very few cases of hazing have been developed. He also reports that 4 cadets were tried by court-martial for offenses connected with the introduction of intoxicating liquor into the barracks in June. They were found guilty and were sentenced "to be dismissed the service of the United States." The sentences, however, were mitigated by the President upon review of the records of trial in the cases.

The usual programme of exercises for practical instruction of the cadets was carried out during the year. The first class made the customary visit to Sandy Hook proving ground, made its annual trip to Fort Hancock for seacoast artillery target practice and service of the mines, and visited Watervliet Arsenal, N. Y., for the purpose of inspecting the armory and witnessing the various operations in the shops.

The report of the superintendent of the academy shows that the revised curriculum, which was placed in operation in the class that

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reported at the academy March 1, 1908, appears to be exceedingly satisfactory and beneficial; that it gives promise of yet greater advantage when the new course shall have been in full and complete operation for an entire academic period; but that it is too early as yet to estimate with accuracy the full measure of success or failure of any particular feature of the new programme. The lengthening of the academic course by three months, by having the new cadet class report at the Military Academy on March 1 instead of June 1, which was also applied first to the class that reported at the academy in 1908, was intended to relieve the congestion that has been apparent in that course for many years. The superintendent reports that the lengthening of the course has resulted in inconvenience to some of the departments, but, he remarks, this inconvenience should be cheerfully borne if the academic results sought to be obtained are realized.

The superintendent of the academy again renews the recommendation, made each year since 1904, that officers serving on tours of duty at the Military Academy be made members of the detailed staff, in order that the best talent may be secured for duty at the Military Academy without crippling the regiments from which those officers are obtained.

It is reported that the Military Academy detachment of field artillery is in a high state of efficiency; that the cavalry detachment does its work in a very satisfactory manner; and that the engineer detachment has continued its high standard of excellence and has been of much assistance to the cadets in instruction in practical military engineering, signaling, and telegraphy.

The supply of water is reported to have been abundant and healthful and no case of disease has been traced to that source.

The work of restoring the historic fortification, Fort Putnam, progressed satisfactorily during the year, under the supervision of the instructor in practical military engineering.

The act of Congress approved April 19, 1910 (36 Stat. L., 323), authorized the purchase of what was formerly known as Cranston's Hotel on grounds adjoining the West Point reservation. This affords hotel facilities easily accessible but sufficiently distant to be of no inconvenience to the academy.

The erection of buildings at the United States Military Academy, under the plan for improvements provided for in the act of Congress approved June 28, 1902 (32 Stat. L., 419), has progressed steadily. A detailed statement of the work accomplished during the past year is printed in the annual report of the superintendent of the academy and need not be repeated here.

RECRUITING FOR THE ARMY.

Through the continued activity of the officers on general recruiting service the enlisted strength of the Army was maintained almost at the authorized number during the entire fiscal year. However, in view of a prospective reduction, on July 1, 1910, in the maximum authorized enlisted strength, instructions were issued to recruiting officers March 1, 1910, to accept only those applicants for enlistment who had prior army service. Active recruiting for all branches of

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the line of the Army was resumed July 19, 1910. During the suspension of active recruiting, visits of recruiting officers to auxiliary stations, involving the payment of mileage, were reduced to the minimum.

At the beginning of the fiscal year 1910 there were 119 officers on the general recruiting detail, and at the end of the year there were 137. The latter number includes 18 retired officers detailed under the provisions of the act of Congress approved April 23, 1904 (33 Stat. L., 264), and 75 officers on duty at recruit depots.

On June 30, 1909, there were 126 central recruiting stations and on June 30, 1910, there were 132. Of these, 58 were main stations, each of which was in charge of a recruiting officer; the remainder were auxiliary stations. In the New York City recruiting district there were 4 officers in charge of stations under the supervision of the recruiting officer in charge of the district. In addition to the main and central auxiliary stations, temporary stations were opened from time to time for the purpose of canvassing the territory of the recruiting districts.

The smallest number of cities and towns canvassed by officers of the general recruiting detail in any one month was 206; the largest number canvassed in any one month was 240. During the preceding year those numbers were 150 and 342, respectively.

The following table shows the number of applicants accepted for the Army and the number of applicants rejected at general recruiting stations, including those at auxiliary stations, during the fiscal year ended June 30, 1910:

Recruiting districts.	Number of applicants accepted.	Number of applicants rejected.	Total number of applicants.	Applicants accepted at stations and subsequently rejected at recruit depots and depot-posts.
Albany, N. Y	183	1,024	1,207	26
Atlanta, Ga	175	728	903	19
Baltimore, Md	231	1,547	1,778	29
Boston, Mass	191	2,762	2,953	19
Buffalo, N. Y	245	1,251	1,496	33
Charlotte, N. C	211	760	971	32
Chattanooga, Tenn. [a]	83	173	256	18
Chicago, Ill.:				
601 West Madison street	565	4,051	4,616	105
323 South State street	911	4,703	5,614	172
488 South State street	719	2,713	3,432	143
Cincinnati, Ohio	220	1,434	1,654	36
Cleveland, Ohio	177	919	1,096	26
Columbus, Ohio	192	631	823	21
Dallas, Tex. [b]	126	859	985	19
Denver, Colo	284	1,127	1,411	22
Detroit, Mich	290	1,345	1,635	52
Duluth, Minn	124	858	982	37
Evansville, Ind	313	968	1,281	21
Grand Rapids, Mich	92	779	871	18
Harrisburg, Pa	174	490	664	23
Helena, Mont	77	153	230	11
Huntington, W. Va	159	1,230	1,389	24
Indianapolis, Ind	191	812	1,003	30
Joplin, Mo	230	1,474	1,704	44
Kansas City, Mo	243	1,318	1,561	26
Knoxville, Tenn	521	1,212	1,733	70
Lexington, Ky	202	372	574	38

[a] Transferred to Knoxville, Tenn., recruiting district September 27, 1909.
[b] Reopened October 9, 1909.

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Recruiting districts.	Number of applicants accepted.	Number of applicants rejected.	Total number of applicants.	Applicants accepted at stations and subsequently rejected at recruit depots and depot-posts.
Little Rock, Ark	136	453	589	15
Los Angeles, Cal	73	319	392	5
Louisville, Ky	222	741	963	27
Memphis, Tenn	102	567	669	10
Nashville, Tenn.[a]	136	667	803	14
Newark, N. J	147	1,264	1,411	29
New Haven, Conn	136	786	922	17
New Orleans, La	159	317	476	33
New York, N. Y	1,790	13,401	15,191	286
Oklahoma, Okla	356	1,995	2,351	71
Omaha, Nebr	234	656	890	22
Parkersburg, W. Va	123	427	550	18
Philadelphia, Pa	255	1,678	1,933	25
Pittsburg, Pa	293	1,142	1,435	37
Portland, Me	118	861	979	17
Portland, Oreg	112	421	533	17
Providence, R. I	147	1,050	1,197	17
Richmond, Va	142	640	782	23
Roanoke, Va	90	477	567	21
St. Louis, Mo	439	1,949	2,388	69
St. Paul, Minn	208	714	922	29
San Francisco, Cal	1,151	4,277	5,428	238
Savannah, Ga	179	1,014	1,193	16
Scranton, Pa	131	871	1,002	16
Seattle, Wash	181	675	856	20
Spokane, Wash.[b]	134	333	467	16
Springfield, Ill	144	424	568	18
Springfield, Mass	135	820	955	21
Syracuse, N. Y	149	673	822	26
Terre Haute, Ind	243	1,120	1,363	41
Toledo, Ohio	240	1,874	2,114	50
Wichita, Kans	110	478	588	9
Total	15,344	78,777	94,121	2,387

[a] Discontinued August 17, 1910, after the close of the fiscal year.
[b] Discontinued August 31, 1910, after the close of the fiscal year.

It will be seen from the foregoing table that nearly 84 per cent of the applicants for enlistment at recruiting stations were rejected at those stations. During the preceding fiscal year 78 per cent of the applicants were rejected at recruiting stations.

As in the preceding year, applicants for enlistment accepted at recruiting stations were sent to recruit depots and depot-posts for physical examination, and for enlistment if found qualified. The results obtained from that method continued to be satisfactory. Of course, as was to be expected, some of the applicants for enlistment accepted at recruiting stations and forwarded to depots or depot-posts eloped before reaching the destination to which they had been sent. Others reported at the depot or depot-post, but for various reasons declined to enlist or left before they were enlisted. The number of these elopers, however, was comparatively small, and it is certain that, if the former practice of enlisting men at recruiting stations had obtained, many of the elopers would have deserted soon after enlistment. In any event, in the cases of these elopers the Government was put to very little expense, having furnished nothing to them but subsistence for a very brief period and transportation from a recruiting station to a recruit depot or depot-post.

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The following table shows the number of enlistments (including reenlistments) for the Army and the number of applicants rejected at the recruit depots, depot-posts, and other military posts, and in the field during the fiscal year ended June 30, 1910:

Station or post.	Number enlisted.	Number rejected.	Total number enlisted and rejected.
General recruiting stations	[a] 74	.....	74
Recruit depots:			
Columbus Barracks, Ohio	3,073	574	3,647
Jefferson Barracks, Mo	3,339	728	4,067
Fort Logan, Colo. (10 months) [b]	831	132	963
Fort McDowell, Cal	931	253	1,184
Fort Slocum, N. Y	3,381	626	4,007
Total	11,555	2,313	13,868
Depot-posts:			
Fort Bliss, Tex	43	1	44
Fort Douglas, Utah	51	.....	51
Fort George Wright, Wash	262	21	283
Jackson Barracks, La	125	38	163
Fort Lawton, Wash	271	18	289
Fort Logan, Colo. (2 months) [b]	42	.....	42
Fort Sam Houston, Tex	216	.....	216
Fort Snelling, Minn	266	70	336
Vancouver Barracks, Wash	146	27	173
Fort William Henry Harrison, Mont	25	4	29
Total	1,447	179	1,626
Military posts (other than depot-posts)	4,586	427	5,013
In the field	756	4	760
Porto Rico Regiment of Infantry	162	96	258
Aggregate	18,580	3,019	21,599

[a] Reenlistments of members of recruiting parties.
[b] Fort Logan was a depot-post until September 2, 1909, when it was made a recruit depot.

The foregoing table does not include 538 enlistments and 82 rejections for the Philippine Scouts. If these are included, the enlistments number 19,118 and the rejections 81,878, including 78,777 rejections at the general recruiting stations, a total of 100,996 enlistments and rejections during the fiscal year ended June 30, 1910, for the entire military establishment.

From March 1, 1910, until after the end of the fiscal year instructions to recruiting officers in charge of recruiting stations required them to accept for the line of the Army only such applicants as had served in the Army previously and had been honorably discharged therefrom. Between March 1, 1910, and June 30, 1910, 23,678 applications for enlistment were rejected. Of these, 12,429 were rejected because of lack of prior military service and 11,249 for other causes. If the 12,429 rejections that were made solely on account of lack of prior military service are excluded from this count, there remain 69,449 rejections for other causes. This number was 78 per cent of the whole number of applications, not including those of men rejected solely because of lack of prior military service. During the preceding fiscal year 77 per cent of the whole number of applications were rejected.

Of the applications rejected during the fiscal year ended June 30, 1910, 1,866 were rejected because the applicants were aliens and 3,286 because they were illiterates.

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The total number of original enlistments and reenlistments for the Army, including the Hospital Corps and the Philippine Scouts, during the fiscal year ended June 30, 1910, was 19,118. Of these, 17,432 were enlisted or reenlisted for the line of the Army, 1,148 (including 607 for the Hospital Corps) for the staff departments, and 538 for the Philippine Scouts.

The original enlistments numbered 11,211, of which 10,601 were for the line of the Army, 279 (including 175 for the Hospital Corps) for the staff departments, and 331 for the Philippine Scouts. The reenlistments numbered 7,907, of which 6,831 were for the line of the Army, 869 (including 432 for the Hospital Corps) for the staff departments, and 207 for the Philippine Scouts.

The following table shows the race and nativity of the men enlisted and reenlisted for the Army during the fiscal year ended June 30, 1910:

Race and nativity.	Regular Army.				Philippine Scouts.	Aggregate.
	Line of Army.	Staff departments, not including Hospital Corps.	Hospital Corps.	Total.		
Native white:						
Enlistments	8,833	92	152	9,077	.....	9,077
Reenlistments	4,656	283	315	5,254	.....	5,254
Total	13,489	375	467	14,331	.....	14,331
Foreign white:						
Enlistments	1,227	12	22	1,261	.....	1,261
Reenlistments	1,111	149	79	1,339	.....	1,339
Total	2,338	161	101	2,600	.....	2,600
Colored:						
Enlistments	453	.....	1	454	.....	454
Reenlistments	933	5	38	976	.....	976
Total	1,386	5	39	1,430	.....	1,430
Indians:						
Enlistments	11	.....	.....	11	.....	11
Reenlistments	20	.....	.....	20	.....	20
Total	31	.....	.....	31	.....	31
Porto Ricans:						
Enlistments	70	.....	.....	70	.....	70
Reenlistments	94	.....	.....	94	.....	94
Total	164	.....	.....	164	.....	164
Filipinos:						
Enlistments	[a] 7	.....	.....	7	331	338
Reenlistments	[a] 17	.....	.....	17	207	224
Total	24	.....	.....	24	538	562
Total enlistments	10,601	104	175	10,880	331	11,211
Total reenlistments	6,831	437	432	7,700	207	7,907
Aggregate	17,432	541	607	18,580	538	19,118

[a] Band musicians.

Nearly 88 per cent of the original enlistments of white soldiers during the fiscal year ended June 30, 1910, were enlistments of men born in the United States.

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The following table shows, by months, the number of enlistments and reenlistments in the line of the Army during the three years ended June 30, 1910:

Months.	Fiscal year ended—								
	June 30, 1910.			June 30, 1909.			June 30, 1908.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
July	1,206	528	1,734	2,834	1,369	4,203	1,288	623	1,911
August	1,293	381	1,674	3,044	986	4,030	1,482	555	2,037
September	1,058	361	1,419	2,532	952	3,484	1,315	601	1,916
October	1,187	459	1,646	2,566	741	3,307	1,377	901	2,278
November	1,204	425	1,629	2,463	731	3,194	2,510	1,117	3,627
December	1,433	454	1,887	2,720	621	3,341	3,735	943	4,678
January	1,349	633	1,982	2,820	756	3,576	3,973	1,360	5,333
February	1,177	878	2,055	1,690	610	2,300	3,022	1,032	4,054
March	247	923	1,170	247	543	790	2,862	1,121	3,983
April	170	603	773	202	442	644	2,336	844	3,180
May	134	578	712	197	364	561	2,722	993	3,715
June	143	608	751	525	492	1,017	2,685	835	3,520
Total	10,601	6,831	17,432	21,840	8,607	30,447	29,307	10,925	40,232

The small results of the recruiting during the latter parts of the fiscal years 1909 and 1910 were due to the discontinuance of active recruiting during the months of March, April, May, and June of those years.

The following table shows, by branches of the service, the number of enlistments and reenlistments in the Army during each of the fiscal years 1910, 1909, and 1908:

Branches of service.	Fiscal year ended—								
	June 30, 1910.			June 30, 1909.			June 30, 1908.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
Staff departments [a]	279	869	1,148	498	966	1,464	767	1,421	2,188
Engineers	52	163	215	127	183	310	232	320	552
Cavalry	1,980	1,341	3,321	4,849	1,493	6,342	6,563	1,911	8,474
Field artillery	1,081	281	1,362	642	467	1,109	2,714	644	3,358
Coast Artillery Corps	3,717	1,418	5,135	7,788	2,127	9,915	7,565	2,754	10,319
Infantry	3,751	3,503	7,254	8,412	4,235	12,647	12,204	5,114	17,318
Miscellaneous	20	125	145	22	102	124	29	182	211
Total	10,880	7,700	18,580	22,338	9,573	31,911	30,074	12,346	42,420

[a] Including the Hospital Corps.

It is believed that the relative increase or decrease in the number of enlistments and reenlistments in the respective branches of the service will be more clearly shown if the numbers appearing in the foregoing table are reduced to percentages of the total number of enlistments and reenlistments during each year. Consequently, the table following, showing those percentages, is presented.

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Branches of service.	Percentages of total number of enlistments and reenlistments during the fiscal year ended—								
	June 30, 1910.			June 30, 1909.			June 30, 1908.		
	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.	Enlistments.	Reenlistments.	Total.
Staff departments [a]	1.50	4.68	6.18	1.56	3.03	4.59	1.81	3.35	5.16
Engineers	.28	.88	1.16	.40	.57	.97	.55	.75	1.30
Cavalry	10.65	7.22	17.87	15.19	4.68	19.87	15.48	4.50	19.98
Field artillery	5.82	1.51	7.33	2.01	1.46	3.47	6.40	1.52	7.92
Coast Artillery Corps	20.01	7.63	27.64	24.41	6.66	31.07	17.83	6.49	24.32
Infantry	20.19	18.85	39.04	26.36	13.28	39.64	28.77	12.06	40.83
Miscellaneous	.11	.67	.78	.07	.32	.39	.06	.43	.49
Total	58.56	41.44	100.00	70.00	30.00	100.00	70.90	29.10	100.00

[a] Including the Hospital Corps.

It appears from the foregoing table that, as compared with the whole number of enlistments and reenlistments, there was an increase in the number of reenlistments during the past fiscal year, the increase being most apparent in the cavalry and infantry branches of the service. There was also an increase in the relative number of reenlistments in the Coast Artillery Corps and in the staff departments, and a slight increase in the relative number of reenlistments in the field artillery and the engineers.

It is believed, however, that a comparison of the numbers of reenlistments in the several branches of the service with the authorized enlisted strength of those branches will show more accurately the relative numbers of reenlistments in the several branches of the service. The following table shows the number of reenlistments to each 1,000 of the authorized strength of the several branches of the service during the fiscal years 1910, 1909, and 1908:

Branches of service.	Number of reenlistments to each 1,000 of the authorized enlisted strength during the fiscal year ended—		
	June 30, 1910.	June 30, 1909.	June 30, 1908.
Staff departments [a]	149	166	244
Engineers	81	91	160
Cavalry	102	113	144
Field artillery	54	89	123
Coast Artillery Corps	73	110	143
Infantry	128	155	192
Miscellaneous	36	35	78
The Army	101	126	165

[a] Including the Hospital Corps.

It is evident from the foregoing table that, as compared with the authorized strength, there was a decrease in the relative number of reenlistments in the Army in each branch of the service during the past fiscal year. That decrease was most marked in the Coast Artillery Corps and the field artillery, and was considerable in other branches of the service.

An examination of the records was made for the purpose of ascertaining the ages of soldiers enlisting and reenlisting in the Regular

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Army. The results in the cases of 18,542 of the 18,580 enlistments and reenlistments during the fiscal year are shown in the following table:

Age at date of enlistment or reenlistment.	Previous military service (United States or foreign).	No prior military service.	Total.
18 to 20 years of age	26	1,547	1,573
21 to 25 years of age	2,028	5,916	7,944
26 to 30 years of age	3,274	1,117	4,391
31 to 35 years of age	2,071	227	2,298
36 to 40 years of age	1,159	.....	1,159
41 years of age and over	1,177	.....	1,177
Total	9,735	8,807	18,542

The reports of recruiting officers showing whether or not the applications received by them were the result, wholly or in part, of any form of advertising, and if so, of what form, were continued during the year with a view to keep the War Department informed as to the efficacy of each of the various methods of advertising for recruits. The following table shows the number of applications reported to have been the result of each of the several methods of advertising during the fiscal year ended June 30, 1910:

Methods of advertising.	Number of applications.
Newspaper advertisement	234
Recruiting poster	19,092
Recruiting circular	5,863
Sight of recruiting flag and station	47,451
Canvass by recruiting parties	2,304
Friends in the Army	13
News items in newspapers	100
Personal letters from recruiting officers (in 1 district during July, September, December, and March; in 2 districts during August, October, November, and June; and in 3 districts during January, April, and May)	90
Special circulars issued by recruiting officers (in 1 district during January, April, and May; in 2 districts during October, November, and February; in 3 districts during July, December, and March; and in 4 districts during August and September)	1,462
Advertising cards	3,527
In parks and squares (14 districts for 9 months and 13 districts for 3 months)	7,047
Handbills	1,440
Postal rate cards (in 1 district during July and from October to May; in 2 districts during August and September)	123
Painted bulletin board (1 district)	75
Night electrical recruiting sign (1 district)	513
Baseball score book (1 district July to October)	77
Total	89,411
Not the result of advertising	5,447
Total number of applicants reported upon	94,858

It is evident from the foregoing list of methods of advertising for recruits that the efforts of the recruiting officers to attract the attention of men who are likely to be candidates for enlistment have been exhaustive and resourceful. The use of illuminated 8-sheet and 24-sheet posters for advertising in the recruiting service, referred to in the preceding annual report, was continued during the year.

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A comparison of the results obtained in the larger cities from the principal methods of advertising with the results obtained in the smaller cities is interesting.

The following table shows, for all recruiting stations, for the stations in 10 large cities, and for those in 10 small cities, the percentages of applicants for enlistment attracted by each of the principal methods of advertising during the fiscal year ended June 30, 1910:

Methods of advertising.	All recruiting stations.	Ten large cities.	Ten small cities.
Recruiting poster	20.13	11.66	33.15
Recruiting circular	6.18	5.84	4.80
Sight of recruiting flag and station	50.02	53.38	40.48
Canvass by recruiting parties	2.43	.08	9.15
Other methods	15.50	24.37	6.81
Not the result of advertising	5.74	4.67	5.61
Total	100.00	100.00	100.00

It will be seen from the foregoing table that, as in previous years, the sight of the recruiting flag and station attracted more than half of the applicants for enlistment. The sight of the recruiting flag and station operated more successfully both in the large cities and in the small cities, the recruiting poster being second. In the large cities, however, approximately 5 applicants were attracted by the sight of the recruiting flag and station to 1 attracted by the sight of the recruiting poster, while in the small cities but 4 were attracted by the recruiting flag and station to 3 attracted by the recruiting poster.

The annual reports of the commanding officers at the five recruit depots show that, when the improvements now in process of completion shall have been finished, those depots will accommodate approximately 5,000 recruits at one time.

The commanding officer at the Columbus Barracks depot, in his annual report, makes the following remarks with regard to the general recruiting service:

> The general recruiting service is in such a high state of efficiency and the results obtained by it are so generally successful that it seems almost presumptuous to recommend changes for its improvement. The uncertainties in the way of the physical examinations at stations have been largely removed by the new manual, replacing Tripler's; the deceptions practiced and mistakes made in cases of minors and married men now seldom pass undiscovered; illiterates are rarely sent to the depots; and desertions and fraudulent enlistments are detected and punished with almost unfailing certainty.

However, he suggests two improvements that appear to him to be desirable, viz:

(1) A uniform system of instruction at depots based upon the squad. In this connection, he says: "Great care should be taken not to make the course so confining and inelastic as to harass young recruits into a spirit of discontent and a hatred of the service, and to stifle the soldierly pride and enthusiasm of instructors. The critical period of a soldier's career is the first few weeks. If he is kept interested and contented then, the chances are that he will be cheerful and willing throughout his enlistment; but if he becomes dissatisfied at the start, he will continue to be a disgruntled man to the end."

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(2) Instruction in swimming at recruit depots. With regard to the instruction of the soldier in swimming, he says: "Military students admit without question that a soldier's efficiency is enhanced when he can swim, yet many never learn to because at the majority of the recruit depots and at many posts there are no facilities for instruction in swimming at all seasons of the year. This is a weakness of the Army that should not be allowed to continue a day longer. The simplest and surest way to overcome it is to install at each recruiting depot a thoroughly equipped swimming pool for the instruction of those recruits who cannot swim."

In concluding his report, the commanding officer at the Columbus Barracks depot says: "Perfection has not been reached, but the depot is now in a position to help to demonstrate that the general recruiting system which has been developed in the past five years is based on sound and lasting principles."

The commanding officer at the Fort Slocum depot reports that the organization and maintenance of recruit squads for instruction, observation, and demonstration was adopted, with most gratifying success. He says that at first academic objections were made by some of the officers of the recruit companies to the scheme proposed, but that, before the end of the first sixty days during which the system was in operation, all opposition on the part of the commissioned officers of the depot had ceased, and familiarity with its obvious advantages continued to gain adherents to the system.

In concluding his report, the commanding officer at the Fort Slocum depot says: "The general recruiting service has proved itself so thoroughly efficient that no important change in any feature of it is thought to be advisable."

The commanding officer at the Jefferson Barracks depot reports that no change was made in the course of instruction of recruits at that depot during the year. By means of a course of practical instruction, accompanied by theoretical instruction through lectures given daily except Saturdays and Sundays, and certain school work, the recruit obtains a good knowledge of his duties as a soldier by the time he is reported as available for assignment to an organization.

With regard to recruits found to be disqualified for service from any cause, the commanding officer at the Jefferson Barracks depot says that, recognizing the fact that one of the important functions of a recruit depot is to eliminate from the service such recruits, he has not hesitated to recommend for discharge without honor men found disqualified through their own misconduct.

The commanding officer at the Fort Logan depot reports that the instruction of recruits has been carried on, as far as practicable, in accordance with the general instructions issued on that subject. He expresses the opinion that authority should be given to advance recruits from section to section according to their proficiency rather than according to length of time and to retain them in a section until they are sufficiently proficient for advancement to the next one.

The commanding officer at the Fort McDowell depot reports that the course of instruction for recruits was modified in its application at that depot. In this connection, he makes the following remarks:

A soldier, having become proficient in the basic drill of the individual and the squad, needs new subjects to stimulate his interest and give zest to the performance of duty. After proficiency is attained in very simple things the recruit goes backward if he is

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not permitted to advance. For recruits passing rapidly through the depot no such diversity of drill is necessary or, I believe, desirable, but for those that must remain for months the condition could be taken advantage of to make the soldier not only ready for the ranks but even, in many cases, ready for some individual responsibility.

As in the preceding year, the complaints that reached the War Department during the past fiscal year concerning the quality of recruits received at military posts were very few in number. Those complaints were investigated exhaustively and it was found that in nearly all of the cases there was little or no justification for the complaints, or that they were based upon such moral deficiencies, discovered after enlistment, as were not discoverable by the recruiting officers.

Maj. Gen. Frederick D. Grant, commanding the Department of the Lakes, in his annual report for the fiscal year, says:

The training of recruits before assigning them to their permanent organizations in the Army has proved not only a success but one of very great value to the Army. The recruit now joins his company, troop, or battery, feeling that he is a soldier and is able to take part in the drills and exercises of his organization, without difficulty. He is self-reliant and sufficiently trained, so as not to commit mistakes that bring forth remarks from his drillmaster and older companions that would humiliate him. Recently I saw a battery of artillery and a squadron of cavalry, nearly all of the enlisted men being recruits of recent assignment, go through drills and exercises with a degree of efficiency that would have been a credit to any organization. Certainly the idea of training recruits at the recruiting rendezvous before assigning them to their permanent organizations was a most beneficial one, and the originator of the plan not only deserves the greatest credit, but also the thanks of all the commanding officers of the Army.

In a report of inspections of the recruit depots, made by Maj. Loyd S. McCormick, inspector-general, during the past fiscal year, that officer makes the following statement with regard to the examination of applicants for enlistment at those depots:

One of the most interesting and thorough features of the present system of recruiting is the examination of the applicant. I witnessed the complete course of examination at each depot, and was most favorably impressed by the care and attention to detail shown by the surgeon having charge, and of the depot surgeon as the final judge as to the acceptance of a doubtful case. If all the duties of the Army could be performed with the uniformity, care, and knowledge now devoted to the examination of applicants for enlistments, the result would be the elimination of most of our miscarriages and shortcomings. From the moment of arrival at a depot until rejected or located by assignment in a company the applicant is, as much as possible, kept apart from the other enlisted men; and by lectures and talks made acquainted with his duties and military behavior

COST OF RECRUITING.

An exhaustive investigation was made during the past fiscal year with a view to ascertain as nearly as possible the approximate per capita cost of putting recruits into service.

Because of the probable effect of local or temporary economic and social conditions upon the expenses and the results of recruiting, it was not considered desirable to limit to a single year the investigation that was made. It was determined to take two groups of years, the first group comprising the fiscal years 1903 and 1904, a period during which the old system of recruiting was in operation, and the second group comprising the fiscal years 1908 and 1909, a period during which the present system of recruiting was in operation. This gave a range of data of sufficient scope to afford a reliable basis for a general average of results and for a comparison of the recruiting service at different dates.

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To secure accurate information as to the relative amounts of the items of expense properly chargeable to the recruiting service during those fiscal years, the chiefs of the several staff corps and departments concerned were called upon to furnish statements of the amounts expended by or through those corps and departments for the different branches of the recruiting service. A greater part of the desired data was obtained from official records, but a minor part could not be ascertained definitely and had to be estimated from the best information obtainable. However, it is believed that in every instance the estimate thus made was very nearly accurate and was entirely fair.

It is manifest that, if a man presents himself at a military post and is at once enlisted and assigned to a troop, battery, or company serving at that post, such a recruit will have cost the Government nothing at all. His three-year term of enlistment begins, and he becomes a member of the organization in which he is to serve, within a few hours after he presents himself at the post. All subsequent expenditures on him or on his account for pay, clothing, subsistence, shelter, medical attendance, transportation, or any other of the many items of the cost of maintaining a soldier, from the beginning to the end of his term of enlistment, are in no wise connected with his recruitment, and of course none of these expenditures is chargeable as expense of the recruiting service.

It is also manifest that in estimating the cost of the general recruiting service, which gathers up recruits from all parts of the country, enlists them and forwards them to the organizations in which they are to serve, it is proper to charge to that service only such items of expense as would not have been incurred if the men collected, enlisted, and forwarded to organizations by the general recruiting service had, without the intervention of that service, presented themselves in the first instance at the stations of the organizations to which they were eventually assigned and had been enlisted there and assigned to those organizations without expense to the Government. It is not proper to charge any other expenses to the general recruiting service.

The following table shows the per capita cost, on the basis hereinbefore stated, of placing recruits in the ranks of the Army by the general recruiting service during the fiscal years 1903, 1904, 1908, and 1909, also the average per capita cost for the four years:

Fiscal years.	Cost per capita.	Fiscal years.	Cost per capita.
1903	$48.41	1909	$52.86
1904	45.08		
1908	47.99	Average for four years	48.58

The foregoing statement does not include the cost of maintaining the permanent garrisons of the military posts to which, as general depots, recruits collected at recruiting stations throughout the country are sent for examination, enlistment, a certain amount of instruction, and for distribution to organizations of the Army. It is not believed that there is any more reason for charging this cost to the general recruiting service than there would be for charging to that

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service the cost of the construction and repair of buildings and the various other items that are involved in the maintenance of these military posts as such. These posts, even if no recruits were sent to them, would have to be maintained and would have to be garrisoned by troops taken from the line of the Army. They were so garrisoned in 1903 and 1904, but in later years they have been garrisoned by permanent parties authorized by law for that purpose, thus making available for other military duties troops that were formerly required to garrison these posts. However, if the cost of the pay, clothing, and subsistence of the enlisted men comprising the permanent garrisons of these posts should be charged to the general recruiting service, as it plainly should not be because the per capita cost of recruits would thus be made to appear considerably greater than it actually is, that cost, even if stated with this addition, is far less than it commonly has been supposed to be.

The following table shows, on this basis, the per capita cost of placing recruits in the ranks of the Army by the general recruiting service during the fiscal years 1903, 1904, 1908, and 1909, also the average per capita cost for the four years:

Fiscal years.	Cost per capita.	Fiscal years.	Cost per capita.
1903	$76.45	1909	$77.50
1904	63.44		
1908	60.17	Average for four years	69.39

In the calculation on which the foregoing table was based, the cost of subsistence of all of the many thousands of recruits passing through the depots was necessarily included, because in the report furnished by the Commissary-General the cost of subsistence of the enlisted men of the permanent depot garrisons and of recruits passing through the depots was stated as a whole, and that officer reported that it was impossible to segregate the two items of cost. For the reasons before stated, it is not proper to charge, as an expense of the general recruiting service, the cost of subsisting recruits wherever they may be, because their subsistence, like their pay and clothing, is due them under their enlistment contract and must be furnished them wherever they may be, just as if, without the intervention of the general recruiting service, they should present themselves at military stations and should be enlisted and assigned to duty there. The inclusion of this very large item of cost in the foregoing table makes the figures much larger than they should be, especially for the years 1908 and 1909, when an extraordinarily large number of recruits were subsisted at depots for a considerable length of time.

RECORDS AT MILITARY HEADQUARTERS.

In the interest of economy and with a view to uniformity, a system of keeping the record of correspondence in the various offices at the headquarters of military divisions and departments and at the headquarters of military posts at which that system of record keeping is or shall hereafter be authorized was adopted. Instructions for the keeping of those records were published in General Orders, No. 92, War Department, May 5, 1909.

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The system of keeping the record of correspondence prescribed in that order is practically the same as the system that has been operated successfully in the War Department for many years. The new system has not been in operation a sufficient length of time at the various offices at military headquarters to enable any statement to be made now as to whether or not its operation at those headquarters will be as successful as it has been in the War Department.

POST EXCHANGES.

Under the provisions of paragraph 353, Army Regulations, reports of the operations and financial condition of post exchanges at posts under the control of the commanding generals of the several territorial departments are required to be submitted to the department commanders. As those reports are not forwarded to it, this office is not in possession of the data necessary to compile a summary of the operations of post exchanges during the past fiscal year.

Reports of the operations and financial condition of the post exchanges at the several recruit depots and the military prisons are forwarded to this office; but, as those exchanges form so small a part of the whole, a summary of the operations and conditions at them is not believed to be of sufficient value for presentation in this report.

COAST-DEFENSE EXERCISES.

The coast artillery troops of the Regular Army and the organized militia of a considerable number of the States on the Atlantic and the Pacific seaboards engaged in coast-defense exercises during the present year. Those exercises were planned in accordance with the instructions published in General Orders, No. 44, War Department, March 31, 1908.

The exercises began May 3, 1910, and were not completed in all districts until the latter part of the current month.

As many of the reports of those exercises have not yet been received, a complete statement showing the number of troops of the Regular Army and the number of troops of the organized militia that participated in them cannot be presented in this report.

CAMPS OF INSTRUCTION.

General Orders, No. 63, War Department, April 15, 1910, provided for the establishment of camps of instruction at Atascadero Ranch, Cal.; American Lake, Wash.; Pine Camp, Jefferson County, N. Y.; Chickamauga Park, Ga.; Fort Benjamin Harrison, Ind.; Leon Springs Target and Maneuver Reservation, Tex.; Fort Riley, Kans.; Fort D. A. Russell Target and Maneuver Reservation, Wyo.; Maneuver Reservation at Sparta, Wis.; and Gettysburg, Pa. The length of the encampment in each case was fixed at one month.

The order before referred to required that, in the concentration of regular troops and in their dispersion at the conclusion of the period in camp, the routes should be so arranged as to require marches which, for dismounted troops, should be 200 miles one way or 100 miles each way; and for mounted troops 250 miles one way or 150 miles each way. When the distance of the permanent station

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from the camp exceeded the required marches, authority was given to cover the excess by rail or water transportation.

The marches and camps were intended to approximate, as nearly as might be, the conditions of field service in time of war. With that end in view, the flooring of tents and like semipermanent arrangements were prohibited. To perfect the field training of troops, the maximum of drills, exercises, and problems looking to that end was enjoined, together with a minimum of formal ceremonies and a total absence of merely spectacular exhibitions.

Provision was also made, in the order before cited, for the assembling from time to time in those camps of portions of the organized militia.

The following table shows the number of troops of the Regular Army and of the organized militia assembled at each camp of instruction, as shown by the returns for those camps:

Camps of instruction.	Regular Army.				Militia.				Total Regular Army and militia.			
	Companies.	Number of troops.			Companies.	Number of troops.			Companies.	Number of troops.		
		Officers.	Enlisted men.	Total.		Officers.	Enlisted men.	Total.		Officers.	Enlisted men.	Total.
Atascadero Ranch, Cal.	34	177	2,309	2,486	56	250	2,072	2,322	90	427	4,381	4,808
American Lake, Wash.	40	166	2,537	2,703	53	221	2,401	2,622	93	387	4,938	5,325
Pine Camp, N. Y.	36	146	2,500	2,646	109	480	5,771	6,251	145	626	8,271	8,897
Chickamauga Park, Ga.	25	113	1,665	1,778	172	748	8,222	8,970	197	861	9,887	10,748
Fort Benjamin Harrison, Ind.	33	141	2,034	2,175	119	527	5,733	6,260	152	668	7,767	8,435
Leon Springs, Tex.	33	83	2,102	2,185	54	200	2,332	2,532	87	283	4,434	4,717
Fort Riley, Kans.	41	138	3,035	3,173	96	440	3,881	4,321	137	578	6,916	7,494
Fort D. A. Russell, Wyo.	70	217	4,024	4,241	21	73	762	835	91	290	4,786	5,076
Sparta, Wis.	31	123	1,980	2,103	78	341	3,622	3,963	109	464	5,602	6,066
Gettysburg, Pa.	24	120	1,832	1,952	170	760	8,120	8,880	194	880	9,952	10,832
Total	367	1,424	24,018	25,442	928	4,040	42,916	46,956	1,295	5,464	66,934	72,398

SMALL-ARMS FIRING.

The Small-Arms Firing Regulations of 1908 were revised by a board of officers appointed by the Secretary of War for the purpose, which board was convened, in accordance with paragraph 8, Special Orders, No. 113, War Department, May 13, 1908, at the School of Musketry, Presidio of Monterey, Cal. The work of the board was approved by the Secretary of War on January 23, 1909, and has been published as the "Provisional Small-Arms Firing Manual." That manual became effective January 1, 1910. Its adoption has placed the small-arms target practice of the military service on a footing more nearly approaching battle conditions.

As it is difficult, without experience and thorough test, to prescribe satisfactory rules for small-arms practice, involving new kinds of fire, it will probably be found necessary or advisable after one or two seasons' experience on the range to make changes in some portions of the new manual.

Qualification in the grades of sharpshooter and expert rifleman has been made more difficult, and officers and enlisted men not qualifying

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as marksmen, sharpshooters, or expert riflemen are classified as unqualified; field practice and the proficiency test have been added; and the grade of expert revolver shot has been established in revolver practice, a badge being provided for qualification in that grade.

As the regular practice season may extend, under the Provisional Small-Arms Firing Manual, 1909, to October 31, and as there is always more or less delay in the compilation and forwarding of some of the reports of the results of the rifle and revolver firing of the several organizations of the line of the Army in target practice, it has been found to be impracticable to make a complete statement of the results of that practice in the current annual report. It has been the custom, however, to announce those results in War Department general orders as soon as the reports have all been received, examined, and digested.

The results of the small-arms firing of the several organizations of the line of the Army in target practice during the season of 1909, not including the organizations stationed in the Philippine Islands, were published in General Orders, No. 28, War Department, February 19, 1910. Continued improvement was shown in the rifle firing for 1909 by the increase in the number of qualifications in the higher grades of marksmanship as compared with the number for the preceding year. For the practice season of 1909, 2,875 expert riflemen, 9,790 sharpshooters, and 5,815 marksmen, of the line of the Army, were reported as qualified, as against 2,379 expert riflemen, 7,807 sharpshooters, and 4,204 marksmen for the year 1908.

Under paragraph 1365, Army Regulations, as amended by General Orders, No. 21, War Department, February 3, 1909, enlisted men qualifying as expert riflemen, sharpshooters, and marksmen are entitled to additional pay of $5, $3, and $2 a month, respectively, "from the date of qualification to the end of the enlistment in which they qualify, provided that during that time they do not attain a higher classification and that they continue to be members of an organization armed with the rifle or are transferred for the convenience of the Government to some organization not so armed."

Data with regard to the number of competitors and the number of medal winners in the several small-arms competitions during the year 1909 were given in the last annual report. Detailed results of those competitions, showing the winners of the prizes prescribed, the comparative efficiency of the several teams in the United States, and the names of the marksmen transferred to the classes of "distinguished marksmen" and "distinguished pistol shots," respectively, were announced in General Orders, No. 228, War Department, November 12, 1909.

No small-arms competitions were held throughout that part of the Army serving in the United States in 1910. Paragraph 264, Provisional Small-Arms Firing Manual, 1909, provides that competitions shall be held each alternate year, and the Secretary of War has directed that those competitions be held in the odd-numbered years. Competitions in the Philippine Islands take place in such numbers, under such regulations, at such places, and at such times as the division commander may direct, as provided by paragraph 335 of the Provisional Small-Arms Firing Manual, but no competitions have been reported from that division for 1910.

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The National Board for the Promotion of Rifle Practice arranged for the holding of the several annual national competitions for 1910 on the Ohio State range at Camp Perry, Port Clinton, Ottawa County, Ohio, and prescribed conditions and regulations for those competitions. Those conditions and regulations, having received the approval of the Secretary of War, were published in General Orders, No. 26, War Department, February 17, 1910. The competitions began August 22, 1910, with the national team match, followed by the national individual match and the national revolver match, under the supervision of Col. Robert K. Evans, Twenty-eighth Infantry, as executive officer. In the national team match there were entered 2 teams—1 cavalry and 1 infantry—from the Army, 1 from the Navy, 1 from the Marine Corps, 1 of midshipmen from the United States Naval Academy, and 38 teams from the organized militia. No teams were sent by the organized militia of Idaho, Maine, Nebraska, Nevada, New Hampshire, North Carolina, Oregon, Rhode Island, South Dakota, Vermont, Washington, or Wyoming. The competing teams were divided into three classes, A, B, and C, upon the basis of their relative standing in the national team match of 1909, and the prizes were awarded to each of the teams making the four highest aggregate scores in each class.

The following table shows the winning teams, the scores made, and the prizes won in that competition:

Order.	Team.	Score.	Prize.
	CLASS A.		
1	United States Army, infantry	3,186	National trophy and $450.
2	United States Marine Corps	3,136	$350.
3	United States Army, cavalry	3,115	$300.
4	Iowa	3,112	$250.
	CLASS B.		
1	United States Naval Academy	3,107	Hilton trophy and $350.
2	Colorado	3,086	$250.
3	Michigan	3,066	$225.
4	Minnesota	3,021	$200.
	CLASS C.		
1	Kansas	2,981	Bronze Soldier of Marathon and $300.
2	Arizona	2,916	$200.
3	Utah	2,825	$175.
4	North Dakota	2,807	$150.

A medal was also awarded to each member of the winning teams, the medals for each class being of a different design.

The interest manifested by the militia in the national team matches is shown by the number of entries each year since the institution of those matches. Eleven State teams were represented in 1903, 19 in 1904, 32 in 1905, 37 in 1906, 43 in 1907, 45 in 1908, 43 in 1909, and 38 in 1910. It is to be observed that the maximum number of State teams represented was reached in 1908, and that the number represented in the recent matches was considerably less than in 1908. It was also less than the number represented in 1909.

The first prize in the national individual match, a gold medal and $60, was won by Sergt. Scott Clark, Company D, Second Indiana Infantry, with a score of 274, and the first prize in the national

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revolver match, a gold medal and $30, was won by Capt. Jay P. Hopkins, Coast Artillery Corps, United States Army, with a score of 419. Captain Hopkins also won the special prize for the highest score in slow fire and that for the highest score in rapid fire, national revolver match.

The detailed results of the matches at Camp Perry will be published in War Department general orders as soon as complete returns shall have been received in this office and the compilations completed.

MILITARY TOURNAMENTS.

Since July 1, 1909, upon the requests of local civil authorities, troops of the Regular Army participated in military tournaments at various places.

A tournament was held at Toledo, Ohio, July 5 to 10, 1909, and was participated in by 26 companies and a machine-gun platoon of infantry, a squadron of cavalry, a battery of field artillery, 1 company each of the Hospital Corps, Corps of Engineers, and Signal Corps, with a balloon detachment, a detachment of bakers and cooks, and 2 bands.

One regiment of infantry, 1 squadron of cavalry, a battery of field artillery, and a band participated in a tournament held at Dallas, Tex., August 22 to 29, 1909.

At Des Moines, Iowa, 4 battalions and 2 machine-gun platoons of infantry, 2 regiments of cavalry, 2½ batteries of field artillery, 1 company each of the Hospital Corps, Corps of Engineers, and the Signal Corps, with a balloon detachment, a detachment of bakers and cooks, a pack train, and 3 bands, participated in a tournament September 20 to 25, 1909. The interest in this tournament was so great that another tournament was held there, at the request of the citizens of that city, September 26 to October 5, 1910. The report of the commanding general of the department showing what troops participated in the latter tournament has not been received.

A tournament, which was an adjunct to the Hudson-Fulton celebration of October 7 and 8, 1909, was held at Albany, N. Y., October 4 to 9, 1909. One squadron of cavalry, 2 battalions of infantry, a battery of field artillery, and 1 company each of the Hospital Corps and Corps of Engineers, a detachment of bakers and cooks, a pack train, and 3 bands, took part in that tournament.

Two squadrons of cavalry, 2 battalions of infantry, 1 battery of field artillery, 1 company each of the Corps of Engineers and Signal Corps, half a company of the Hospital Corps, a detachment of bakers and cooks, a pack train, and 2 bands, participated in a tournament held at Nashville, Tenn., June 19 to 26, 1910.

At Chicago, Ill., a tournament was held during the ten days, July 4 to 14, 1910. Two regiments of infantry, 2 squadrons of cavalry, 1 battery of field artillery, 1 company each of the Signal Corps and Corps of Engineers, half a company of the Hospital Corps, a detachment of bakers and cooks, and 4 bands, participated. The attendance at this tournament was unusually large, over a million people having been reported to have attended during the ten days.

A tournament was held at Tacoma, Wash., from July 24 to 31, 1910. Two battalions and 2 machine-gun platoons of infantry, 1 troop of cavalry, 2 provisional companies of coast artillery, a battery

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of field artillery, detachments of the Corps of Engineers and the Hospital Corps, and 4 bands, participated.

It is believed that these exhibitions of troops are advantageous to the Army in that they interest and instruct the public in the duties and training of the Regular Army soldier as shown in his daily life in camp; that they are beneficial to the recruiting service; and that they are productive of a more favorable attitude on the part of the public toward the soldier. The fine bearing, discipline, and manly behavior of the soldiers have received much praise from the people who attended those tournaments.

MILITARY OPERATIONS IN THE PHILIPPINES.

The only disturbance of any magnitude reported to The Adjutant-General's Office as having taken place in the Philippines during the fiscal year was that in which Jikiri and his band were killed or captured on the island of Patian in July, 1909. A detailed account of that affair was given in the last annual report.

It was also reported to this office that a detachment of 12 enlisted men of the Third Company, Philippine Scouts, was ambushed, February 14, 1910, by Moros near Pantar, Mindanao. Two enlisted men of the scouts were wounded; 1 of the Moros was killed, and 3 were reported to have been wounded.

In view of the activities of Mandac, formerly a provincial governor, and his followers at Solano, Nueva Viscaya, Northern Luzon, early in September, 1910, the governor-general requested the commanding general of the Philippines Division to have three battalions of the Philippine Scouts held in readiness to be sent against Mandac and his followers. However, Mandac was captured and his followers dispersed without sending any of the scouts to the scene of the outbreak.

The reports of the commanding generals of the Philippines Division and the military departments in that division have not yet reached this office, and, consequently, no statement can be made now as to what those reports will show with regard to general conditions in those islands during the past fiscal year.

FOREST FIRES.

Since the end of the fiscal year 1910 the troops of the Regular Army have rendered valuable and efficient service in fighting forest fires in the northwest.

On August 5, 1910, the president of the Western Forestry and Conservation Association, representing the States of Montana, Idaho, Washington, and California, advised the President by telegraph that forest fires were raging in the national forests of those States, and requested the aid of the troops of the Regular Army in checking the destruction of the Government forests. At that time most of the troops stationed in that section of the United States were concentrated in camps of instruction and the garrisons of the posts nearest to the scenes of the fires were reduced to a minimum. The President, however, on August 7, 1910, directed that orders be issued to the proper military authorities to render all possible aid in suppressing the fires, and instructions to that effect were immediately given to the commanding generals of the military departments concerned.

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The fires at Lo Lo Hot Springs, 60 miles from Missoula, Mont., had assumed such proportions on August 10, 1910, as to necessitate withdrawing three companies of infantry from the camp of instruction at American Lake and sending them to Lo Lo Hot Springs and to the Flathead Indian Agency. The fires increased with such rapidity and became so menacing to life and property in the small towns in Montana, Idaho, Washington, and Oregon, as well as to the forest reserves, that the troops at the camp of instruction at American Lake were practically all withdrawn during the month of August and sent to various points in those States.

It was also found necessary to send two companies of the Coast Artillery Corps from the Presidio of San Francisco to assist in fighting fires that had broken out near Auburn and Colfax, Cal. Those companies were sent August 23, 1910.

Troops of the Fourth Cavalry, while on a practice march in South Dakota, encountered forest fires near Nahant and Dumont, and delayed their march several days, during the latter part of August, 1910, while fighting and extinguishing those fires.

The number of troops engaged in aiding the Forestry Service to extinguish forest fires, and the sections of the country in which they were so engaged, are shown in the following table:

Location.	Number of companies.	Strength.		
		Officers.	Enlisted men.	Total.
In California:				
At Auburn, Colfax, and Stanislaus Park—				
Detachment of Troop K, First Cavalry	.....	1	10	11
Two companies Coast Artillery Corps	2	5	150	155
Hospital Corps	.....	2	5	7
Total	2	8	165	173
In Oregon:				
At Ashland, Butte Falls, Wallowa, and Union—				
Nine companies First Infantry	9	17	460	477
Hospital Corps	.....	4	10	14
Total	9	21	470	491
In Washington:				
At Republic and North Yakima—				
One troop First Cavalry and 2 companies First Infantry	3	17	156	173
Hospital Corps	.....	3	6	9
Total	3	20	162	182
In Idaho:				
At Wallace, Avery, and Placerville—				
One troop First Cavalry and 2 companies Twenty-fifth Infantry	3	6	144	150
Hospital Corps	.....	3	5	8
Total	3	9	149	158
In Montana:				
In Glacier Park, at Flathead Agency, Lo Lo Hot Springs, Dixon, Kalispel, Henderson, Olney, Borax, Stryker, Camas Creek, Lake Kintla, Belton, Blackfeet Reservation, Nyack, Midvale, and Coram—				
Three companies of the Second, 9 of the Fourteenth, and 5 of the Twenty-fifth Infantry	17	35	793	828
Hospital Corps	.....	5	19	24
Total	17	40	812	852
In South Dakota:				
Near Nahant and Dumont—				
Four troops Fourth Cavalry	4	9	193	202
Hospital Corps	.....	2	7	9
Total	4	11	200	211
Aggregate	38	109	1,958	2,067

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Under date of August 16, 1910, the fires on the Flathead Reservation were reported to be partially under control, but on the 19th of that month it was found necessary to send another company of infantry there. Fires in various sections, which had apparently been subdued, continued to break out afresh, so that troops relieved from one section of the country had to be hurried to another place or returned to their first station. A fall of rain and snow, occurring August 23, 1910, practically extinguished the fires on the Flathead Reservation in Montana, and on August 31, 1910, instructions were given for the withdrawal of the troops not needed there and for the return of the troops to their stations. However, it was not until September 19, 1910, that the last troops were reported to have returned to their proper station from fighting forest fires.

The troops encountered great discomforts and many difficulties in this service. In Montana the temperature fell below freezing during the latter part of August, and resulted in much suffering on the part of the troops. The fires at Yakima, Wash., were in such an inaccessible region that it was found to be necessary to employ mounted troops there, and those troops were dependent entirely upon pack trains for their supplies.

In a letter to the Secretary of War, under date of September 15, 1910, the Secretary of Agriculture transmitted the thanks of his Department for the assistance afforded by the troops, and commended, in highest terms, the splendid discipline and efficiency displayed by them.

GOVERNMENT HOSPITAL FOR THE INSANE.

It appears from the reports of the superintendent of the Government Hospital for the Insane that during the past fiscal year 175 persons were admitted to that institution on account of service in the Regular or the Volunteer Army of the United States. Those admissions consisted of 3 officers and 84 enlisted men on the active list, 3 retired officers, 4 retired enlisted men, 20 former enlisted men of the Regular Army, 55 former volunteers, and 6 military convicts. In addition to these, 2 civilian employees of the Quartermaster's Department are reported to have been admitted to that hospital during the past fiscal year.

There were 13 commissioned officers of the Army under treatment at the hospital at the beginning of the fiscal year. During the year 6 officers were admitted, 2 died, and 7 were relieved from treatment. There were 10 officers of the Regular Army under treatment at that institution on June 30, 1910.

The enlisted men on the active list were all discharged from the military service soon after their admission to the institution.

UNITED STATES MILITARY PRISON.

By law, the government and control of the United States Military Prison is vested, under the Secretary of War, in the Board of Commissioners of the United States Soldiers' Home, and the president of that board is required to submit to the Secretary of War, annually, a statement of the financial and other affairs of the prison. It is believed, therefore, to be unnecessary to present, in this report,

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anything with regard to the United States Military Prison, or the Pacific Branch thereof, other than to show the number of convicts in confinement there.

At the beginning of the fiscal year there were 774 military convicts in confinement at the United States Military Prison, Fort Leavenworth, Kans. During the year 678 military convicts were received, 524 were released upon expiration of sentence, 22 were released by remission of sentence, 5 escaped, and 3 died, leaving 898 military convicts in confinement there on June 30, 1910. The annual report of the commandant shows that the monthly average number in confinement during the fiscal year was 867.

At the beginning of the fiscal year there were 336 military convicts in confinement at the Pacific Branch of the United States Military Prison. During the year 730 military convicts were received, 569 were released upon expiration of sentence, 29 were released by remission of sentence, 2 died, 1 escaped, and 2 were transferred to other places of confinement, leaving 463 military convicts in confinement there on June 30, 1910. The annual report of the commandant shows that the average daily number in confinement was 375.

MILITARY CONVICTS.

At the beginning of the fiscal year there were 2,676 military convicts in custody. Of this number, 1,487 were in confinement at military posts; 16 at the United States Penitentiary, Leavenworth, Kans.; 774 at the United States Military Prison, Fort Leavenworth, Kans.; 336 at the Pacific Branch, United States Military Prison, Alcatraz Island, Cal.; 29 at the Government Hospital for the Insane, Washington, D. C.; 1 at the general hospital, Fort Bayard, N. Mex.; and 33 were in transit from one place of confinement to another.

During the fiscal year 2,754 military convicts were committed to confinement, 42 escaped convicts were recaptured, 2,761 convicts were released at expiration of sentence, 82 escaped, 7 died, and the whole of the unexecuted parts of the sentences were remitted in 143 cases, leaving 2,479 military convicts in custody on June 30, 1910. Of this number, 1,062 were in confinement at military posts; 16 at the United States Penitentiary, Leavenworth, Kans.; 898 at the United States Military Prison, Fort Leavenworth, Kans.; 463 at the Pacific Branch, United States Military Prison, Alcatraz Island, Cal.; 30 at the Government Hospital for the Insane, Washington, D. C.; and 10 were in transit from one place of confinement to another.

It will be seen from the foregoing figures that during the fiscal year there was a decrease of 425 in the number of military convicts confined at military posts, 1 at the general hospital at Fort Bayard, N. Mex., and 23 in transit, while there was an increase of 124 in the number at the United States Military Prison, Fort Leavenworth, Kans., 127 at the Pacific Branch, United States Military Prison, Alcatraz Island, Cal., and 1 at the Government Hospital for the Insane, Washington, D. C., a net decrease during the year of 197 in the number of military convicts in confinement.

The number of military convicts reported to have escaped during the past fiscal year was 27 more than during the preceding year. Of the 82 escapes reported, 5 occurred at the United States Military Prison, Fort Leavenworth, Kans., 1 at the Pacific Branch, United

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States Military Prison, Alcatraz Island, Cal., and 1 at the Government Hospital for the Insane, Washington, D. C., the remainder (75) escaping from military posts at which they were confined. The largest numbers of escapes from military posts were reported as having occurred at Fort Leavenworth, Kans., and Fort Snelling, Minn., those numbers being 7 and 5, respectively. During the preceding year the largest numbers of escapes occurred at Fort Snelling, Minn., and Fort Hamilton, N. Y., those numbers being 6 and 5, respectively. During the past fiscal year 4 escapes were reported from Fort Thomas, Ky., and the Presidio of San Francisco, Cal.; 3 from Fort Riley, Kans., Fort William McKinley, P. I., Fort Ethan Allen, Vt., Madison Barracks, N. Y., and Fort Wadsworth, N. Y.; 2 from Fort Huachuca, Ariz., Fort Logan, Colo., Fort Lawton, Wash., Vancouver Barracks, Wash., Fort Yellowstone, Wyo., Fort Jay, N. Y., Fort Porter, N. Y., Fort Sheridan, Ill., Fort D. A. Russell, Wyo., Fort Robinson, Nebr., and Fort Sam Houston, Tex.; 1 from Fort George Wright, Wash., Fort Missoula, Mont., Fort Adams, R. I., Fort Myer, Va., Fort Revere, Me., Fort Barrancas, Fla., Fort Oglethorpe, Ga., Fort Wayne, Mich., Fort Des Moines, Iowa, Fort Meade, S. Dak., Fort McIntosh, Tex., Fort Sill, Okla., and Fort San Pedro, P. I., respectively.

As in previous years, applications for clemency in the cases of prisoners undergoing confinement in execution of sentences of general courts-martial added materially to the correspondence of the office. At the beginning of the fiscal year 169 applications for clemency, previously made, had not received final consideration, they having been referred to commanding generals of military departments or elsewhere in the course of investigation as to the merits of the cases. During the year, 1,237 applications for clemency were received, but 84 of these were cases in which other applications were pending at the date of their receipt. Clemency was denied in 903 cases, the unexecuted parts of sentences were wholly remitted in 97 cases, and parts of the unexecuted sentences were remitted in 136 cases. Before final action had been taken on applications for clemency in their cases, 7 military convicts had been released on expiration of sentence, 3 had escaped, and 1 had died. At the close of the fiscal year 175 cases had not received final consideration, having been referred to commanding generals or others in the course of investigation as to the merits of the cases and not having been returned to this office before the close of the year. It is proper to remark, however, that the number of cases received does not represent the number of individual prisoners by whom, or in whose behalf, applications for clemency were made. In many cases as soon as one application is denied another is presented, as many as 6 successive applications having been received and acted upon during the year in the case of one military convict. The 1,136 cases acted upon during the year were applications in the cases of 923 military convicts, as against 1,006 applications in the cases of 860 military convicts acted upon during the preceding year.

The unexecuted parts of the sentences of confinement were remitted by the War Department in the cases of 6 military convicts during the past fiscal year, upon recommendations of the commandants of the prisons who had been authorized, in order to give special recognition at suitable times to convicts who gain the most meritorious

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record, to recommend for clemency, on the Fourth of July and Thanksgiving Day of each year, 2 convicts at the United States Military Prison and 1 convict at the Pacific Branch, who had served not less than eighteen months of their terms of confinement and who had the best record of conduct at the prison.

In addition to the cases considered upon applications, the unexecuted parts of the sentences were remitted by the War Department for administrative reasons in the cases of 15 military convicts without applications for clemency having been made in their behalf.

The number of applications for clemency, in the cases of military convicts, acted upon by the commanding generals of the several military departments is unknown. The whole of the unexecuted parts of sentences, however, were remitted by commanding generals in 25 cases, making a total of 143 cases in which the whole of the unexecuted parts of the sentences of confinement were remitted by the War Department or by subordinate military authorities during the year. During the preceding fiscal year the whole of the unexecuted parts of sentences were remitted by commanding generals in 80 cases, making a total of 202 cases in which the whole of the unexecuted parts of the sentences of confinement were remitted by the War Department or by subordinate military authorities during that year. The number of remissions of sentences by department commanders, before shown, includes only military convicts in whose cases the execution of the sentence of confinement was begun, and does not include cases in which the sentences of confinement were remitted by commanding generals at the time the proceedings and findings of courts-martial were acted upon, the number of cases of the latter class being unknown to this office.

CURRENT WORK OF THE ADJUTANT-GENERAL'S OFFICE.

The work of The Adjutant-General's Office, as in previous years, was kept constantly up to date, 94.9 per cent of all cases received during the year having been disposed of within twenty-four hours from the time they reached the office. During the preceding year 96.6 per cent of the cases were disposed of within twenty-four hours. The comparatively few cases that required more than twenty-four hours for investigation and adjudication in the office were complicated cases. They were disposed of as promptly as possible, usually within two or three days.

The following table shows either the source of receipt or the character of the cases received and formally recorded during the fiscal year ended June 30, 1910:

NUMBER OF CASES RECEIVED AND DISPOSED OF.

From the Commissioner of Pensions	46,849
From the Auditor for the War Department	77,420
From the Comptroller of the Treasury	176
From the Commissioner of the General Land Office	1,614
From the Civil Service Commission	379
From the General Staff, the Chief of Coast Artillery, and chiefs of bureaus of the War Department	10,412
From the Army at large	96,482
Beneficiary designations	17,865
Recruiting for the Army	8,419
Militia of States and Territories	526

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Clemency for military convicts	2,427
From Union associations and volunteer soldiers' homes	1,174
From Confederate associations and homes and State pension officials	8,916
Applications for original discharge certificates	72
Applications for certificates in lieu of lost discharges	6,295
Applications for removal of charge of desertion	1,452
Remuster cases	93
All other cases, miscellaneous	74,655
Total	355,226
On hand June 30, 1910	None.

In addition to the 355,226 cases received and formally recorded, 5,248 informal calls for information from the records were received from other bureaus of the War Department, and 3,478 notices of retirement, desertion, or dishonorable discharge of enlisted men were furnished to the accounting officers of the Treasury Department, making a total of 363,952 cases, formal and informal, handled in the office during the fiscal year. This was an average of 1,189 cases for each working day of the fiscal year, as compared with an average of 1,389 cases for each working day during the preceding year, and of 1,132 cases during the year 1908. These averages indicate a decrease in the quantity of cases acted upon during the past fiscal year, as compared with the preceding year, but it is evident, from the relatively larger number of cases that required more than twenty-four hours for investigation and adjudication, that more of the cases were complicated ones.

As in preceding years, the cases received from the Commissioner of Pensions consisted of calls for information from the official records relative to the service, military status, or medical treatment of former officers and enlisted men of the regular and volunteer forces. Of the 46,849 calls received during the year, 772 related to service in the Philippine insurrection and 4,604 to service in the war with Spain. The remaining 41,473 cases related to service in previous wars, principally the civil war, and to service in the Regular Army in times of peace. The foregoing figures show a decided decrease in all classes of calls received from the Commissioner of Pensions, the number received during the past fiscal year being 8,253 less than the number received during the preceding year and 39,872 less than the number received during the year 1908.

The 77,420 cases received from the Auditor for the War Department consisted of calls for information from the records relative to the service or status of officers and enlisted men. Of these cases, 170 related to service in the Philippine insurrection, 613 to service in the war with Spain, and the remainder (76,637) to service in other wars and in the Regular Army in times of peace. The number of calls from the Auditor for the War Department was less in Philippine insurrection and Spanish war cases, but was much greater in cases relating to other wars and to the Regular Army in times of peace, than during the preceding year. The decrease in the number of Philippine insurrection cases was 135 and in Spanish war cases 441, while in other cases the increase was 32,393, making a net increase of 31,817 in the number of calls received from the Auditor for the War Department.

Calls for information from the records relative to service of individuals in the Volunteer or Regular Army, for use in connection with

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the administration of the land laws of the United States, were received from the Commissioner of the General Land Office in 1,614 cases, as against 1,440 such cases received during the preceding fiscal year.

The Civil Service Commission made 379 calls for record information in the cases of claimants for preference in appointment to civil office under section 1754, Revised Statutes, and for reinstatement. The number of such cases received during the preceding fiscal year was 424.

The large number of cases (106,894) received from the General Staff, the Chief of Coast Artillery, and chiefs of bureaus of the War Department, and from the Army at large related to such diverse subjects as arise in connection with the command or administration of the existing military establishment. That number, which was larger than the number (101,809) received during the preceding fiscal year, does not include the 8,419 cases that related to recruiting for the Army. The steady increase in the paper work relating to the Army is evident when it is observed that the number of cases received in The Adjutant-General's Office from the General Staff, the Chief of Coast Artillery, chiefs of bureaus of the War Department, and from the Army at large during the fiscal year 1906 numbered 59,332, while the number of such cases for the fiscal year 1907 had increased to 72,318, that for the fiscal year 1908 the number was 95,082, for the fiscal year 1909 it was 101,809, and that for the past fiscal year it was 106,894. The foregoing figures show that the paper work of this class has doubled itself in the past five years.

The 17,865 beneficiary designations shown in the table are designations, under the provisions of the act of Congress approved May 11, 1908 (35 Stat. L., 108), by officers and enlisted men on the active list of the Army of the persons to whom payment of an amount equal to six months' pay shall be made in case of death.

Only 526 cases relating to the organized militia were received during the year. The small number of this class of cases received is due to the establishment, referred to in the last preceding annual report of this office, of the Division of Militia Affairs in the Office of the Secretary of War.

Of the communications received during the year, 2,427 related to the granting of clemency to military convicts. That subject is discussed elsewhere in this report.

The 1,174 cases received from Union associations and volunteer soldiers' homes were requests for information concerning the military service of applicants for admission to or membership in those homes and associations, or the military service of the former soldiers on account of whose service such admission or membership was sought. The number of such cases received during the preceding fiscal year was 1,008.

Requests for information concerning the military service of former Confederate officers and enlisted men were received from Confederate associations, homes, and State pension officials in 8,916 cases during the year, as against 4,570 cases of that kind received during the preceding year. No separate record of the number of Confederate State pension cases was kept, but it is believed that more than one-half of the 8,916 cases before referred to were requests for information for use in State pension claims.

The number of applications for original discharge certificates in the cases of former soldiers who, for various reasons, failed to receive

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such certificates at the dates of their separation from the military service was smaller during the fiscal year ended June 30, 1910, than during the previous fiscal year. There were only 72 such applications received during the past year, while the number received during the previous year was 165.

During the past fiscal year 6,295 applications for certificates in lieu of lost or destroyed discharge certificates were received. Those certificates are issued under the provisions of the act of Congress approved July 1, 1902 (32 Stat. L., 629). The number was less than the number (7,037) received during the preceding year, and was also less than the number (8,139) received during the fiscal year 1908.

The number of applications for the removal of charges of desertion under the provisions of the act of Congress approved March 2, 1889 (25 Stat. L., 869), and the acts amendatory thereof, has continued to grow less. During the past fiscal year 1,452 applications for removal of the charge of desertion were received, as against 1,524 during the preceding year and 1,817 during the fiscal year 1908. Since the date of the original act authorizing the removal of charges of desertion in the cases of soldiers of the civil war and the war with Mexico, many thousands of applications for the relief provided have been received and disposed of. It is believed that the charge of desertion has been removed in practically all of the meritorious cases, and that most of the cases that will be presented to the Department hereafter will be but renewals of former applications, many of which have been denied repeatedly and are without merit. The number of applications received during the year, as shown in the table, does not include such cases as arose in the preparation of military histories of former soldiers for the Commissioner of Pensions and the accounting officers of the Treasury, no record of the number of those cases having been kept. In all such cases the charge of desertion thus discovered was removed under the act, when found to be clearly within its provisions, without any formal application for relief.

The remuster cases mentioned in the preceding statistical table are cases arising under the act of Congress approved February 24, 1897 (29 Stat. L., 593), "To provide for the relief of certain officers and enlisted men of the Volunteer Forces." This act, which is the last of a series of somewhat similar enactments, provides for the payment of volunteer officers of the civil war for services rendered under their commissions, under certain conditions, or which they were prevented from rendering by reason of casualties of the service. It also provides for the recognition of the rank conferred upon them by their commissions and gives to them or their heirs the pensionable status accruing from service in the grades as of which recognition is extended. The steady reduction from year to year in the number of remuster cases received in this office indicates that the benefits of the act have been applied in a majority of the cases that it was intended to reach. A proviso in the act of Congress approved April 19, 1910 (36 Stat. L., 324), directs, with reference to the remuster act before referred to, that "No claims shall be allowed or considered under said act after the first day of January, nineteen hundred and eleven."

The miscellaneous cases shown in the table cover a wide range of subjects, including all cases not specifically classified in the table, relative to the disbanded armies of all wars, to the organizations, officers, and enlisted men composing those armies, and to former

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officers and enlisted men of the Army of to-day. The miscellaneous correspondence of the office during the past fiscal year averaged 244 cases for each working day of the year. It included a large correspondence with individual Senators and Representatives in Congress, as well as many reports for the use of Congressional committees relative to pending or proposed legislation, and involved the determination of the great variety of questions that constantly arise in connection with the history or status of organizations and of individual officers and enlisted men.

The miscellaneous cases also include inquiries received from the descendants of soldiers of the Revolutionary war and the war of 1812 and from the various patriotic societies relative to service in those wars. During the past fiscal year there were received 2,835 requests, involving 3,888 names, for records of service in the Revolutionary war, and 928 requests, involving 1,062 names, for records of service in the war of 1812.

Of the 4,598 informal calls for information from the records, before referred to, 3,876 were requests received from the Quartermaster-General of the Army for information from the records for use in connection with applications for headstones and marking the graves of deceased soldiers. Those requests involved 14,272 names.

The informal calls received from the Quartermaster-General also included requests for information in 650 cases of applications for the Philippine Congressional medals, so-called, referred to elsewhere in this report.

During the past fiscal year 4 lists, containing approximately 4,500 names, were received from the commissioner for marking graves of Confederate soldiers, making a total of 22 lists, containing approximately 25,300 names, that have been received from that source since the passage of the act of Congress approved March 9, 1906 (34 Stat. L., 56), to provide for the appropriate marking of the graves of the soldiers and sailors of the Confederate Army and Navy who died in Northern prisons and were buried near the prisons where they died. The names on the lists received from the commissioner for marking graves of Confederate soldiers were verified, as required by the act of Congress before cited, in all cases in which such verification was possible.

The distribution of general and special orders and circulars forms a large and important part of the work of The Adjutant-General's Office. Those orders and circulars are distributed to the Army through the adjutant-general of the Philippines Division and the adjutants-general of the several territorial departments in the United States, in accordance with the provisions of paragraph 808, Army Regulations. The following table shows the number of copies of orders and circulars distributed during the fiscal year ended June 30, 1910:

General orders	2,514,792
Special orders, full copies	96,473
Special orders, extracts	39,874
Circulars	942,398
Artillery memoranda	41,901

The distribution of blank books and forms to the Army through the adjutant-general of the Philippines Division and the adjutants-general of the several territorial departments in the United States

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was continued during the year as provided for in General Orders, No. 14, War Department, January 17, 1908. That method of distribution of blanks has continued to give satisfaction and has presented further evidence that the change in the method of distribution of blank books and forms was in the interest of economical administration.

During the fiscal year 1,736,138 blanks were distributed by this office, either directly or to the adjutants-general of the military division and departments for distribution by them.

The systematic gradual examination and revision of the blank books and forms for use in the Army, referred to in the two preceding annual reports, was continued during the past fiscal year. When that examination and revision shall have been completed, it is expected that most of the expensive and bulky books and other forms of varying sizes will have been replaced by relatively small and inexpensive forms, of a standard size, that shall be as well adapted to field as to garrison use.

In addition to orders, circulars, memoranda, and blanks, The Adjutant-General's Office distributed about 54,395 copies of miscellaneous documents and other publications during the fiscal year. Those publications included the Army Register, monthly Army List and Directory, station lists, and annual reports.

Copies of the Army Regulations, Infantry Drill Regulations, Small-Arms Firing Regulations, Light Artillery Drill Regulations, Field Artillery Drill Regulations, Outlines of First Aid to the Injured, Manual of Guard Duty, Manual of Bayonet Exercises, and Field Service Regulations are supplied, for use as text-books, to educational institutions at which officers of the Army are detailed as professors of military science and tactics. The number of those publications so distributed by this office during the year was 3,576.

During the past fiscal year there was no reduction in the quantity of mail matter intended for officers and enlisted men of the Army and directed to them in care of The Adjutant-General's Office. During that year 63,332 pieces of mail matter were readdressed to officers of the Army, as against 62,562 pieces readdressed during the preceding year. No record of the quantity of mail readdressed to enlisted men was kept.

PERSONAL IDENTIFICATION SYSTEM.

The use of finger-print records as a means of personal identification, described in previous annual reports, was continued during the past fiscal year. At the close of the fiscal year, identification records had been received in 150,382 cases. Of these, 34,363 were cases of reenlistment in which those records made during the previous service were on file. On June 30, 1910, the office had on file identification records of 116,019 individuals who were then, or had been previously, enlisted men in the Army.

The utility of the finger prints as a means of identification was demonstrated again during the past fiscal year in the case of a man, believed to be a soldier, whose body was found near Cincinnati, Ohio, and was taken to the military post at Fort Thomas, Ky. The finger prints of the corpse, having been obtained and forwarded to this office, were identified promptly and positively as those of an enlisted man of the Tenth Infantry and information concerning him was at once

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conveyed to his company commander. Another interesting case of the establishment of identity by means of the finger-print system of personal identification was that of the body of a murdered man found floating in the Hudson River off Hackensack, N. J. The body had been in the water so long that identification by ordinary means was impossible. Measures were taken by telegraph to obtain impressions of the fingers, and to have the prints forwarded to this office, where they were recognized at once as those of an enlisted man who had been absent, whereabouts unknown, from Fort Slocum for some days. The identification resulted in the body being turned over to the soldier's relatives for interment instead of being permitted to rest among the unknown and pauper dead in the potter's field.

During the fiscal year ended June 30, 1910, 222 cases of fraudulent enlistment by former deserters, military convicts, and others were discovered through the operations of the finger-print system of personal identification. During the preceding year the number of cases of fraudulent enlistment discovered was 340.

Of the 222 cases of identity discovered during the year, 27 had been withdrawn from military control when the discovery was made. Of the remaining 195 cases, 23 were held to service, 162 were dishonorably discharged and confined for various periods by sentence of general courts-martial, 9 were discharged without honor, and in 1 case no report of final determination has been received.

INDEX-RECORD CARD WORK.

The work of reproducing, by the index-record card system, the individual-service records of Confederate troops in service during the civil war was continued during the past fiscal year as rapidly as the condition of the current business would permit. But little other index-record card work was done during the year, because, as was shown in preceding reports, the carding of the volunteer individual-service records of the several wars, except those of Confederate troops, had been virtually completed.

During the past fiscal year there were prepared 710,003 military cards and 1,222 medical cards, making, with those previously prepared, a total of 49,122,588 of the former and 7,907,132 of the latter class, or an aggregate of 57,029,720 index-record cards prepared up to and including June 30, 1910.

The foregoing statement includes 5,665,553 Confederate military cards, 709,533 of which were prepared during the past fiscal year. Those cards were prepared in the process of compilation of the Roster of Officers and Enlisted Men of the Union and Confederate Armies, pursuant to the act of Congress approved February 23, 1903 (32 Stat. L., 884), and represent entries on the records and *not individuals*, as is shown more fully elsewhere in this report.

OFFICIAL RECORDS OF THE UNION AND CONFEDERATE ARMIES.

The distribution of the Official Records of the Union and Confederate Armies to the Senators, Representatives, and Delegates to the Fifty-seventh Congress, and to the permanent libraries and educational institutions designated by those Senators, Representatives, and Delegates, under the provisions of the act of Congress approved

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March 3, 1903 (32 Stat. L., 1145), was continued during the past fiscal year as designations were received under that law.

The whole number of copies of the Official Records of the Union and Confederate Armies distributed during the fiscal year ended June 30, 1910, including sales, was as follows:

Books (volumes or parts of volumes)	12,995
Atlases (complete)	103
Plates (maps)	333

The sales during the fiscal year amounted to $49.90, and that amount was deposited in the United States Treasury, as required by law.

ROSTER OF OFFICERS AND ENLISTED MEN OF THE UNION AND CONFEDERATE ARMIES.

The compilation, under the direction of the Secretary of War, of a complete roster of the officers and enlisted men of the Union and Confederate armies, authorized by a clause in the legislative, executive, and judicial appropriation act approved February 23, 1903 (32 Stat. L., 884), was continued during the past fiscal year. Preceding annual reports contain detailed statements with regard to the method of reproduction, by the index-record card system, of the individual service records of the officers and enlisted men of the Union and Confederate armies, as a preliminary step in the compilation of that roster. Those reports also refer to the efforts made to complete the very incomplete collection of Confederate records in the possession of the War Department. But little was accomplished during the past fiscal year in the work of making that collection more complete, only one muster roll, that of a company of Virginia infantry, being loaned to the Department during that year. It was copied and the original was returned promptly to the person who loaned it.

During the past fiscal year further progress was made in reproducing the records of Confederate service, that work including the reproduction of the records of organizations from North Carolina and South Carolina.

In addition to this, the work of compiling the Union records of Confederate prisoners of war was continued. As was stated in the last annual report, the Union records of Confederate prisoners afford much information concerning the service of many men whose names, unless those records were compiled, would not appear in the roster, because the records of the organizations to which they belonged are missing. The reproduction of the records of any one State will not be completed until all of the Union records of Confederate prisoners of war have been reproduced.

As shown elsewhere in this report, the whole number of Confederate military index-record cards prepared up to and including June 30, 1910, was 5,665,553. It is to be observed that this number represents the number of record entries carded, and of course does not represent the number of individuals in service. A considerable number of record entries appear in many cases in the record of one individual, and an index-record card is made in the case of each entry. It is believed, however, that when the collection of Confederate records in the War Department has been made as nearly complete as it is possible to make it, and the reproduction of those records by

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the index-record card system has been completed, it will be possible, by bringing together all the cards representing record-entries in the case of each individual Confederate soldier, to make an approximation of the whole number of individuals in service in the Confederate Army during the civil war that will be more nearly correct than any estimate that has heretofore been made by anyone.

MEDALS OF HONOR.

The earliest general legislation by the Congress of the United States authorizing the issue of medals of honor is the joint resolution approved July 12, 1862 (12 Stat. L., 623), and section 6 of the act of Congress approved March 3, 1863 (ibid., 751). A medal of a design different from those issued under the legislation before cited was adopted for issue under the act of Congress approved April 23, 1904 (33 Stat. L., 274), which supplemented the prior legislation on the subject of awards of medals of honor. The latter act provides for the presentation, by direction of the President and in the name of Congress, of medals of honor to such officers, noncommissioned officers, and privates as "have most distinguished or may hereafter most distinguish themselves by their gallantry in action." Provision was also made for the exchange of medals of later design for those of the original design previously issued.

During the fiscal year ended June 30, 1910, 26 medals of honor were issued. Of these, 24 were issued to replace medals of the old design, and 2 were original issues of medals awarded during the year. The whole number of awards of the Congressional medal of honor up to and including June 30, 1910, was 2,604.

CAMPAIGN BADGES.

Campaign badges, to be issued as articles of uniform to officers and enlisted men in service "to commemorate services which have been or shall hereafter be rendered in campaign," were authorized by General Orders, No. 4, War Department, January 11, 1905. The campaigns for which those badges were issued were announced from time to time in War Department general orders. A summary of those campaigns is published in General Orders, No. 129, War Department, August 13, 1908.

During the past fiscal year 859 other names were added to the lists of officers and enlisted men who were found to be entitled to campaign badges, making a total of 39,665 officers and enlisted men found to be entitled to those badges. Of these, 28,885 were found to be entitled to Philippine campaign badges, 7,079 to Spanish campaign badges, 1,587 to China campaign badges, 1,718 to Indian campaign badges, and 396 to civil war campaign badges. The campaign badges are issued by the Quartermaster-General of the Army on data furnished by The Adjutant-General's Office.

In addition to the badges provided for in the orders before cited, authority was given in General Orders, No. 96, War Department, May 11, 1909, for the issue of a service badge, to be known as the Army of Cuban Pacification badge, to officers and enlisted men who were in service on the date of that order, or thereafter, and who

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served as officers or enlisted men in Cuba with the Army of Cuban Pacification between October 6, 1906, and April 1, 1909. Since the issue of that order, data have been furnished to the Quartermaster-General in the cases of 6,070 applications for those badges.

The issue of a certificate of merit badge and ribbon to each officer and enlisted man in the service to whom a certificate of merit had been or might thereafter be issued was authorized in General Orders, No. 4, War Department, January 11, 1905, as amended by General Orders, No. 129, War Department, August 13, 1908. The badge and ribbon prescribed by those orders are a part of the uniform, and are to be worn in the manner prescribed for campaign badges. At the close of the last fiscal year 214 certificate of merit badges had been issued.

A decision of the Secretary of War, of May 26, 1908, authorized the issue of campaign badges to members of the organized militia who are entitled to wear the uniform of the United States Army and whose service conforms to the requirements of General Orders, No. 129, before cited. Since the date of that decision data have been furnished to the Quartermaster-General of the Army in the cases of approximately 1,500 members of the organized militia who made application for campaign badges.

PHILIPPINE SERVICE MEDALS.

The Philippine service medals authorized by the act of Congress approved June 29, 1906 (34 Stat. L., 621), are, under the terms of that act, "to be presented to each of the several officers and enlisted men and families of such as may be dead, who, having volunteered and enlisted under the calls of the President for the war with Spain, served beyond the term of their enlistment to help to suppress the Philippine insurrection, and who subsequently received an honorable discharge from the Army of the United States, or who died prior to such discharge." Those medals are issued by the Quartermaster-General of the Army on data furnished by The Adjutant-General's Office.

Up to and including June 30, 1909, reports as to whether service upon which the application was based was such as to authorize the issue of that medal had been made by The Adjutant-General's Office in 5,858 cases. During the past fiscal year similar reports were made in 650 cases, making a total of 6,508 applications for Philippine service medals received since the enactment of the legislation before cited. In 5,654 of these cases the service was found to be such as to come within the provisions of the law, and in the remaining 854 cases the service was found to be such as to preclude the issue of the medal. In a great majority of the cases of the latter class the applicants, or the persons on account of whose service applications were made, did not enter the service under a call of the President for the war with Spain, or did not serve in the Philippine Islands, or did not serve in the Philippine Islands after the termination of the war with Spain, or the service was not terminated honorably.

In the case of each of the applications received, the Quartermaster-General was advised with regard to the record of the applicant, or the person on account of whose service the application was made.

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CIVILIAN EMPLOYEES OF THE ADJUTANT-GENERAL'S OFFICE.

The successful operation of any large office is dependent upon the interest, faithfulness, and zeal of the rank and file of the employees, as well as upon the executive ability of, and efficient performance of duty by, those engaged in a supervisory capacity. Interest, zeal, and efficiency were not lacking among the civilian employees of The Adjutant-General's Office, and the satisfactory condition of the work of the office, shown elsewhere in this report, is the result of the existence of those factors among the employees.

Commendatory notice in an annual report is but small compensation for faithful and efficient performance of duty, but it is not in the power of The Adjutant-General to bestow any more substantial recognition of that performance of duty on the part of the civilian employees of the office. However, it is but proper to renew the expression of appreciation, made in prior annual reports, of the zeal and interest manifested by the civilian employees, almost without exception, in the work of the office.

It will afford The Adjutant-General much pleasure if Congress shall deem it expedient to legislate so as to give more substantial pecuniary recognition to those of the employees in his office whose ability, adaptability, and interest in their work merit such recognition.

F. C. AINSWORTH,
The Adjutant-General.

The SECRETARY OF WAR.

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REPORT OF THE INSPECTOR-GENERAL.

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REPORT OF THE INSPECTOR-GENERAL.

WAR DEPARTMENT,
OFFICE OF THE INSPECTOR-GENERAL,
Washington, August 25, 1910.

SIR: I have the honor to submit the following report concerning the operations of the Inspector-General's Department during the fiscal year ended June 30, 1910:

PERSONNEL.

The personnel of the permanent department remains unchanged from that reported last year, and consists of one brigadier-general and two colonels. One of the colonels performed no duty in the Inspector-General's Department during the fiscal year, being detailed as a member of the General Staff.

At the close of the fiscal year the inspectors-general doing duty in the department under the provisions of the act of February 2, 1901, consisted of 1 colonel, 4 lieutenant-colonels, and 9 majors; and under the provisions of the act of June 23, 1874, the 4 acting inspectors-general comprised 1 lieutenant-colonel and 3 majors.

These officers performed the numerous and delicate duties pertaining to their position with commendable efficiency, zeal, and impartiality.

INSPECTIONS.

During the past fiscal year the inspection of the military establishment by the Inspector-General's Department was as complete as its force permitted. This inspection embraced every branch of military affairs, and included all the stated duties assigned to the department—as the inspection of military posts, stations and commands, the Military Academy, the service schools, the armories and arsenals, the depots of the supply departments, the recruit depots and the main recruiting stations, the military prisons, the army transports, the mine planters, the cable ships, the ungarrisoned posts, the national cemeteries, etc. The usual inspections of the money accountability of disbursing officers of the army, and numerous inspections of unserviceable property presented for condemnation, were made.

In addition to the varied and numerous duties regularly assigned, many special investigations were made by the officers of the department; and these involved the expenditure of a good deal of time, as well as a good deal of the mileage allotted to the Inspector-General's Department.

The number of officers in the Inspector-General's Department is not sufficient to thoroughly perform the duties assigned to it by law

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and regulations. Several times during the past year it has been necessary to draw upon the line of the army in order to keep up the work of inspection. It is recommended that necessary legislation be asked for the increase of the department by one lieutenant-colonel and one major.

REDUCTION OF EXPENSES.

In carrying out the retrenchment policy of the administration, the Secretary of War, July 29, 1909, gave special instructions which required inspectors-general to conduct their inspections of depots and military stations during the fiscal year 1910, with a view to ascertaining and reporting whether or not a reduction in the cost of maintenance thereof could be made without serious impairment of efficiency.

The reports of inspections received show that these instructions have been observed by the inspectors, and that the depots and military stations were found, in general, to be economically administered. Where curtailment of expenditures was found practicable under the terms of the instructions, recommendations to that end have been made by the inspectors, and these have received consideration by the responsible commanders or by the War Department.

The inspector-general, Philippines Division, reports that:

> One fruitful source of drain upon the appropriation for "Supply of the army" is in customs charges paid on articles which are not and can not be produced in the Philippine Islands.

OFFICERS.

Troops can not be maintained in a high state of efficiency unless their officers remain with them. The complaint of the absence of officers continues.

Col. J. L. Chamberlain, inspector-general, Philippines Division, in commenting upon the lack of instruction and consequent lack of efficiency of the troops in the Philippines, says:

> The second cause is absence of captains from their commands, and this I believe to be the most fruitful source of professional disease in the line of the army to-day. * * *
>
> Enforcement of Army Regulations, paragraphs 40 and 260, immediate relief from detached duty of a large number of officers whose services with their organization are far more important than are their present duties, and relief of all captains except those "required by law" would, I believe, go far toward curing the evils of which we hear so much in connection with increase of personnel, desertions, etc.
>
> In supplying the shortages or alleged shortages in officers the needs of the line appear to be entirely ignored.

Maj. F. G. Mauldin, inspector-general, Department of the Gulf, says:

> At a number of the posts the scarcity of officers and the various duties required have rendered it necessary to detail for duty in the supply departments officers who have had very little experience, and in some cases so many other duties are also required that it is difficult for them to learn the new duties and perform the other work too.

Maj. J. B. Erwin, inspector-general, Department of the Missouri, says:

> The absence of officers from their commands is a serious handicap to the discipline and efficiency of the troops. The percentage of officers absent from

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inspections of posts during the past year to the aggregate of the officers in the department was 32.57. Last year this percentage was 32.39. Though these officers are detailed on important and demandable duty, and in some instances are pursuing a higher course of instruction in the duties of their profession, yet their absence seriously impairs the discipline and efficiency of the troops.

Lieut. Col. F. H. French, inspector-general, Department of Texas, cites as being pertinent in connection with this subject the following extract from the report of the last annual inspection of Fort Sill, Okla., to wit:

Attention is invited to the fact that although the First Battalion, First Field Artillery, is under orders for Philippine service, no field officer is on duty with the battalion, all the batteries are commanded by lieutenants, and one of them * * * by a second lieutenant of less than two years' service * * * whose record shows no military training prior to his being commissioned. It would seem that an organization having the expensive material and the large personnel of a field battery should have a commander whose experience has been sufficient to qualify him for such command.

Lieutenant-Colonel French continues the subject with the remark:

The Army List for June 20, 1910, shows that Batteries A and B, First Field Artillery, are now in the Philippine Islands without a major and with only one captain, who is the battalion adjutant. Not only are the troops deprived of the training and experience of the older officers, but the fact that the service in the Philippine Islands demands the detail from the command present of officers for various duties and thus reduces the number of those actually on duty with troops is lost sight of.

It must at once be evident that, unless something is done to remedy the condition which deprives the troops to so great an extent of the benefit of the presence and experience of their officers, results of a disastrous nature must sooner or later be realized. The obvious remedy for the evils of excessive absenteeism of officers is the provision by law of a sufficient number of supernumerary officers of the necessary grades to replace those whom the exigencies of the service require to be absent from their commands. With a corps of supernumerary officers it would be practicable for all the officers, at one time or another, to acquire a knowledge and experience of every phase of military duty.

In the absence of relief of the present situation by provisions of law, or of any immediate prospect of it, various expedients have been suggested looking to an increase of the available supply of officers. Among these is one recommended by Col. George F. Chase, inspector-general, Department of the Lakes, to the effect that quartermasters and commissaries at large posts be made permanent officers, not subject to duty with troops in the field; and that such quartermasters and commissaries be assigned to this duty from the retired list, if that may be done by the President under the authority of present laws; if not, that the matter be called to the attention of Congress.

THE LINE OF THE ARMY.

Lieut. Col. W. E. Wilder, inspector-general, Department of the Colorado, says:

The military service is greatly behind in the matter of specialization. We try to crowd too much upon the officer and enlisted man of the line. That is, we try to teach all of them everything, instead of specializing and only teaching each as much as he can learn well with ordinary application, which, however much we may expect, is all that we can ever obtain.

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If it is necessary, for instance, that the line should know signaling, then it is necessary for them to know it well; and after it has been decided what percentage of the line of the army should know signaling that number should be formed into a detachment in each regiment and taught to signal by flag, torch, and heliograph and how to skillfully construct, maintain, and operate telephone and telegraph lines. It would be a simple matter for a commander to defeat an enemy if he knew where the enemy were and what he were doing and could convey orders at once to his own troops. But all this requires the means of accurately and expeditiously transmitting information and orders from and to every unit of the command. This is a service without which a general can do practically nothing as compared with one who is thoroughly well equipped with such facilities. Our Signal Corps is excellent, but we must have the element of quick communication right with our line or fail in war against an enemy who has. It should be a part of the organization of every regiment of regulars or militia. The Signal Corps can not be expanded sufficiently to promptly meet the needs of an army in war; and besides, the means of accurately and expeditiously transmitting messages must be with every regiment and every battalion, and the men that can do that must be specialists. We should not try to make our men jacks of all trades.

Maj. George Bell, jr., inspector-general, Department of the Columbia, says:

In order that we may get the best results in the shortest time it is earnestly recommended that a board of infantry officers, preferably of the grade of captain, but not lower than that grade or higher than major, be sent abroad to study the marching of the leading armies for a year, with orders at the end of that period to train a battalion furnished them for this purpose, with result of their experience and observations as a guide. When once their work is demonstrated, the remainder of the infantry can be brought up to the standard in an exceedingly short time and volunteers also could be quickly trained when necessary. The officers selected, if the best results are desired, should be practical, enthusiastic field soldiers who have been in recent touch with troops and have also the confidence of the War Department.

DISCIPLINE AND EFFICIENCY.

The discipline of the troops appears to be reasonably satisfactory.

At the annual inspections of the posts the discipline and efficiency of the troops have, in most cases, been tested by the solution of problems.

Maj. George Bell, jr., inspector-general, Department of the Columbia, makes the following recommendations:

(1) UNPREPAREDNESS FOR FIELD SERVICE.

I again call attention to the unpreparedness of the field army for field service; to the fact that our new field service regulations are almost entirely theoretical or dependent upon the experience of armies other than our own; * * * that the transportation for the army in the field is practically the same as it was in 1861, for our army is probably the only one among those of the leading nations which has not made use of automobiles, traction engines, etc.; to the fact that we have theoretical theses on how to supply ammunition to the firing line, but as yet these have not been tried in the field, nor have we had any experience in delivering supplies to troops in action and on the marching of trains and the position of various wagons, so that the amount of crowding produced by combat trains has not been ascertained by us, and we have to depend entirely upon our reading for the experiences of other armies.

The faults spoken of or alluded to above could be shown up in a clearer light and corrected before they lead to disaster if the present maneuvers could be replaced at least once by the march of a complete army corps, equipped as it would be in the theater of operations after war had been declared—a corps complete in all particulars and ready for battle. * * *

The cost of the maneuvers this year would be ample to concentrate the necessary troops and national guard to form an army corps at a suitable place

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in the country for a march of about 200 miles, and such a maneuver would not only be of immense value for every officer and man taking part in it, but would result in enabling us to get the practical experience necessary to have our field service regulations brought up to date; would be of great value to our staff departments; would enable troops to become thoroughly familiar with their equipment and correct any defects that might exist therein; would also do away with many false and dangerous ideas of what a soldier really needs in the field, and would give instruction which our army has not obtained since the civil war in 1865. * * *

In theoretical instruction the army probably lacks but very little, but in practical instruction in large bodies it is sadly wanting, as very few of our officers have taken part in the march of a column larger than a regiment.

(2) MARCHING CAPACITY OF OUR INFANTRY.

While our infantry is composed of the best material in the world, and is probably as well, if not better, trained in the use of the rifle than that of any other army, its marching capacity is below mediocrity, and yet it is admitted to-day that the fate of the battles of the future depends, as it has in the past, upon the marching capacity of the infantry. * * *

When the new infantry pack is issued to the service the normal load for our men will be 14 pounds lighter than that of the lightest load of any of the leading armies in the world, and are we to rest contented with inferior marching mediocrity, for if not we must be up and doing. * * *

A suitable automobile which will go through water that can run all over the floor of the body, and which will easily make 15 miles per hour, can be built for about $1,200, and the cost of running it will be less than it now costs to keep up an escort wagon and team, for it would be a gross insult to the intelligence of our men to say we could not easily make chauffeurs out of as many soldiers as were needed. There is, it is true, almost as much opposition to the automobile to-day for use in the army as there was to the building of railroads more than sixty years ago, but those opposed to progress will lose in the end as they have always done, for it is a well-known fact that, if war were thrust upon us to-morrow, it would be practically impossible to obtain the necessary horses and mules, even if the excessive cost were not considered, so we must look for a substitute if we wish to avoid failure. * * *

Training in marching should be upon a par with rifle firing for infantry, and, therefore, during the field training season all officers and men upon detached duties from their post, such as map work, etc., should be required to return to their command for this training. That the marching of the infantry is not up to standard is partly due to the fact that so many officers and men are excused from marches, as the practice still prevails in many large garrisons of taking men for guard, fatigue, and other duties from all organizations.

TARGET PRACTICE.

So far as reported, it appears that every proper effort has been made to conduct the target practice as prescribed, to keep accurate records, and to safeguard the interests of the United States.

Maj. J. B. Erwin, inspector-general, Department of the Missouri, says:

I again renew my recommendation of last year, that firing at 200 yards off-hand should not constitute any part of the record firing of the soldier. A sufficient preliminary instruction in off-hand firing at this range should be given, but, as under battle conditions, there will be no off-hand shooting at 200 yards, the soldier should not be required to practice that which he will have no occasion to use in time of war. The provisional firing regulations in use for the first time during this year's season have thrown stricter safeguards about the system of marking and recording shots, and therefore preserve better the interests of the Government than formerly, in the matter of giving additional pay to the soldier for certain qualifications.

So far as can be determined the course prescribed is much more difficult than that of former years, and the classification of the army this year will not be as high as that of last year.

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Col. J. L. Chamberlain, inspector-general, Philippines Division, says:

A limited amount of service ammunition for inspection purposes should be set aside. The efficiency of mobile troops depends primarily upon their ability at the proper time to get themselves into the proper place and to hit the target the greatest number of times in the shortest space of time. Without the use of ammunition it is impossible for an inspector to arrive at correct conclusions regarding the ability of a command to shoot. * * *

The necessity for ammunition for this purpose is general for all arms of the service. For field artillery it is imperative.

BUSINESS METHODS OF THE SUPPLY DEPARTMENTS.

In the United States proper the business affairs of the supply departments have been generally economically administered, and, as a rule, supplies have been well cared for and not in excess of the needs of the service.

The system of decentralization recently introduced in the Quartermaster's Department has been found by experience to meet the demands of the army in time of peace.

During the past year the Subsistence Department made some fundamental changes in the method of conducting its business in relation to the sale and issue of supplies and rations; and it has been reported that some of these changes have been tried out sufficiently to show that they will result in both economy and convenience.

In the Philippines the inspections discovered some loose and irregular methods in the administration of many post commissaries and post exchanges. Steps were promptly taken to correct all these irregularities.

Col. J. L. Chamberlain, inspector-general, Philippines Division, says:

There should, I believe, be an entire reorganization of the supply departments. Under existing organization there is lack of coordination and the distribution of duties among the departments is far from that dictated by economy and efficiency. This, in my judgment, is a problem for the General Staff, than which a more urgent one does not exist.

POST COMMANDERS.

In the United States, as a rule, the personal supervision given by commanding officers to the business methods of officers on duty in the supply departments has been good, and generally there seems to be an improvement in this respect over last year.

It is, no doubt, difficult for commanding officers at large posts to literally carry out all their duties and obligations enjoined by Army Regulations and orders. The regulations should be so amended as to authorize commanding officers of large posts to delegate some of the duties now imposed upon them to field officers of the line under their command.

Col. J. L. Chamberlain, inspector-general, Philippines Division, reports that in many instances supervision by commanding officers of the affairs of the supply departments has not been of the character contemplated and required by Army Regulations.

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QUARTERMASTER'S DEPARTMENT.

So far as reported, the quartermaster supplies furnished the army in the United States during the year were, as a rule, satisfactory; requisitions were generally promptly filled; and the new system of paper work recently put into operation was working well. It seems that no efforts were spared to make all possible improvements that the necessities of the service appeared to require.

From the Philippines it was reported that supplies generally have been ample in quantity and satisfactory in quality, the only glaring exception being in the matter of clothing, especially the khaki, which, it is stated, has been the just cause of much dissatisfaction and complaint. The inspector-general of the Philippines Division in his report quotes the chief quartermaster of the Department of Luzon as saying:

> The only satisfactory khaki clothing in the Philippine Islands to-day is that made from English khaki by local contractors. It is cheaper and a thousand times better in every respect. There is no loss from storage, dampness, and mold in transit, and a company paraded in this khaki is smart and uniform in appearance, as the fit is better and there are no degrees of fading from extreme to incipient.

Col. J. L. Chamberlain, inspector-general, Philippines Division, says:

> With certain classes of articles received from the United States there is heavy loss from breakage, due to insecure packing. Notably among such may be mentioned glass, water-closet bowls, washbowls, marble slabs, coffee mills, ranges, and field forges.
>
> Certain bulky articles, like school desks and galvanized-iron feed boxes now furnished from the United States, could, I believe, be more economically procured here, either by manufacture or purchase.

Lieut. Col. C. G. Woodward, inspector-general, Department of California, says:

> Many hundreds of padlocks are condemned every year because made unserviceable on account of lost keys.
>
> All locks issued should be numbered, duplicate keys supplied, and extra keys furnished by the supply department on demand when original keys are lost. Orders governing the care and custody of keys should be enforced.

SUBSISTENCE DEPARTMENT.

The supplies and stores furnished by the Subsistence Department have been satisfactory, and the business methods at the posts have improved over last year.

MEDICAL DEPARTMENT.

The Medical Department appears to have made every effort to take proper care of the sick and the hospitals. Medical supplies are sufficient and of good quality, and the regulations for their use and care have been generally observed. The health of the commands is good, and, as a rule, the sanitary condition of the posts is good or excellent.

One inspector has stated as his opinion, derived from both observation in campaign and fieldwork and the inspection of posts, that the medical field training is not up to the standard and that more atten-

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tion should be given to the duties of the Medical Corps in campaign work, as preparedness for war is of the first importance.

ORDNANCE DEPARTMENT.

The appearance of mounted troops could be materially improved if the men were properly instructed in the best methods of caring for their leather equipments. It has been suggested that this can be accomplished by sending a number of enlisted men, principally non-commissioned officers, from each regiment of cavalry to an arsenal, there to be thoroughly instructed in the methods of cleaning and caring for leather equipments. It could then be made a part of the duty of these men, upon rejoining their regiments, to thoroughly instruct every enlisted man in their respective regiments. This suggestion, it is believed, is an admirable one, and there is no reasonable doubt that the prolonged life of the leather equipments would repay many times over the expense of sending the men to the arsenals.

Among the changes that have been suggested in the cavalry equipments are: Doing away with the lariat and the substitution of a picket line of four to six sections; doing away with the hooded stirrup and the adoption of stirrups, bits, and curb chains made of metal that will not rust, a metal called "near steel" being suggested for the purpose.

CORPS OF ENGINEERS.

Col. J. L. Chamberlain, inspector-general, Philippines Division, says:

It may, I believe, be asserted without fear of challenge that construction work in the army under present conditions leaves much to be desired. Training necessary for work of "construction" is entirely foreign to that which is necessary for an officer of a supply department. "Construction" requires technical knowledge of a high order. Such knowledge is possessed by only a small percentage of the officers of the Quartermaster's Department, while in the Corps of Engineers every officer receives special training along those lines.

It is therefore recommended that all matters pertaining to "construction" be transferred to the Corps of Engineers.

PAY CORPS.

Col. J. L. Chamberlain, inspector-general, Philippines Division, says:

It is believed that the "detail system," so far as it applies to the Pay Corps, should be discontinued. Energetic, ambitious officers of the line, as a rule, object to this detail, and justly so, on the ground that the time so spent is to them a complete loss professionally.

UNSERVICEABLE PROPERTY.

Lieut. Col. C. G. Woodward, inspector-general, Department of California, says:

I am convinced that a quantity of the personal equipment of the soldier, brought before the inspector with the hope that he would destroy it, would not be submitted for his action were it not for the desire to obtain new equipment for the sole purpose of getting a good rating on the relative efficiency report.

If the worn condition of the equipment is to be given prominence in grading a company, then the time that the equipment has been in use should stand for a credit.

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The costs of maintenance of companies of the same regiment, doing relatively the same duties, show material differences.

I am of opinion that a credit allowance, based on requirements, should be made to each organization against which should be charged all renewals and repairs to the personal equipment of the men—quartermaster, signal, and engineer property—and that economy in the upkeep of the company should be considered a factor of efficiency.

CHAPLAINS.

Col. J. L. Chamberlain, inspector-general, Philippines Division, says:

I have become convinced that the army would be vastly better off if the office of chaplain were filled by contract instead of by permanent appointment. The salary, perquisites, opportunities for seeing the world, etc., would furnish great attractions for ambitious young men of all denominations. As their residence status in civil life is not permanent, service for a greater or less period in the army would not prejudice their future prospects. It would, in fact, add materially to their equipment for whatever positions they might be called upon to fill.

POST EXCHANGES.

With some exceptions, the post exchanges appear to have been conducted in a satisfactory manner. In the Philippines loose and irregular methods in the administration of many exchanges were developed by inspection, all of which were promptly corrected.

Maj. George Bell, jr., inspector-general, Department of the Columbia, says:

An investigation of the coupon-book system, as prescribed in paragraph 13 of the post-exchange regulations, shows that it lends itself readily to the keeping of accounts, and when all checks are numbered in each book with the number of the book it renders the keeping of accounts an easy matter. It is believed that the extending of credit to one-half of an enlisted man's pay would have a good result, as this system is adequate to prevent almost entirely the transfer of credit so obtained.

TRANSPORT SERVICE.

The transport service, both trans-Pacific and interisland, has been reported as being in a satisfactory condition. The few complaints made by those traveling upon the Pacific transports have been such as are usually owing to causes for which the transport authorities were not responsible.

On the interisland transports crowded conditions have, upon some occasions, given rise to complaints upon the part of passengers and have caused more or less friction; but it is believed that there will be very little, if any, cause for trouble of this kind in the future, owing to the employment of the *Warren* in the interisland service.

CAMPAIGN BADGES.

As campaign badges should be given as the mark and distinction of service in real campaigns, that is, campaigns under war conditions—in which event they would be a real distinction—it is recommended that they be not awarded except for service in campaigns where there have been actual hostilities.

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GENERAL SERVICE CORPS.

The increase in size of modern military posts and the introduction into them of the park features in the way of lawns, shrubbery, well-kept roads, etc., have added so much to the labor and fatigue work to be performed by troops that it is materially interfering with military duty and contributes to dissatisfaction on the part of the soldier.

The commanding officer, under prevailing conditions, is frequently absorbed by the problem of administration, caring for the buildings, grounds, and accessories; and, unless he is a man of more than ordinary zeal and vigor, is too apt to confine the military training of his command to the drill-book requirements in garrison and reduce to a minimum the practical application of the same.

The remedy of the conditions is the organization of a general service corps to do the labor at the post, thus leaving free the soldier to do military duty.

CLERKS FOR INSPECTORS-GENERAL.

The importance of inspectors-general having clerks of their own to accompany them on their tours of inspection is a matter that has been often urged, and is no less important now than it has always been. The clerical aid available for the use of an inspector at a post is not trained in the character of work required, and therefore it is inevitable that business of importance is often delayed by this state of affairs; the advantages to be gained by prompt action and the moral effect resulting therefrom are lost.

I renew the recommendation made in my last annual report, to wit, that a clerk and a messenger be assigned by name from the War Department to each inspector-general on duty at headquarters of the geographical division and departments, and that efforts be made to secure legislation classifying and paying the clerks as army paymasters' clerks are paid.

CIVILIAN CLERKS.

In my annual reports for several years past I have recommended the enactment of legislation that will provide a system for the retirement of the faithful employees in the classified service who become superannuated. I renew this recommendation.

Respectfully submitted.

E. A. GARLINGTON,
Inspector-General.

The SECRETARY OF WAR.

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REPORT OF THE JUDGE-ADVOCATE-GENERAL.

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REPORT OF THE JUDGE-ADVOCATE-GENERAL.

WAR DEPARTMENT,
JUDGE-ADVOCATE-GENERAL'S OFFICE,
Washington, D. C., September 30, 1910.

SIR: I have the honor to submit the annual report of the Judge-Advocate-General's Department for the year ending June 30. 1910.

COURT-MARTIAL TRIALS.

The following data are compiled mainly from reports of judge-advocates of departments regarding trials by general court-martial completed and published during the year covered by this report:

Commissioned officers—trials by general court-martial:	
Convicted	24
Acquitted	6
Cadets—trials by general court-martial:	
Convicted (sentence disapproved in 1 case)	4
Enlisted men—trials by general court-martial (including 45 cases of discharged enlisted men serving as general prisoners):	
Convicted (sentences disapproved in 25 cases)	4,818
Acquitted	354
Total trials by general court-martial	5,206

Showing a decrease of 374 as compared with last year. The percentage of trials this year was 6.98, as against 7.40 last year.

The following table shows, approximately, the number of convictions of different offenses by general court-martial during the year:

Sixteenth article of war:	
Wasting ammunition	1
Seventeenth article of war:	
Losing accouterments	49
Losing arms	18
Losing clothing	175
Selling accouterments	5
Selling arms	1
Selling clothing	88
Spoiling horse, arms, etc	3
Twentieth article of war:	
Disrespect to commanding officer	38
Twenty-first article of war:	
Disobeying superior officer	142
Offering violence to superior officer	5
Twenty-fourth article of war:	
Disobeying noncommissioned officer, quelling fray, etc	2
Thirty-second article of war:	
Absence without leave	1,437
Thirty-third article of war:	
Failure to attend drill, roll call, etc	317
Thirty-eighth article of war:	
Drunkenness on duty	243

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Thirty-ninth article of war:	
Leaving post	107
Sleeping on post	133
Fortieth article of war:	
Quitting guard	99
Forty-second article of war:	
Misbehavior before the enemy	1
Forty-seventh article of war:	
Desertion	1,305
Sixtieth article of war:	
Embezzlement	5
Larceny	53
Selling government property	2
Wrongful disposition of property	7
Sixty-first article of war:	
Conduct unbecoming an officer and a gentleman	20
Sixty-second article of war:	
Absence without leave not chargeable under the thirty-second article of war	102
Abandoning equipments	1
Abusing noncommissioned officer	1
Abusing public animals	1
Aiding and abetting desertion	4
Allowing prisoner to escape	52
Assault	89
Assault and battery	70
Assault upon noncommissioned officer in performance of duty	20
Assault with dangerous or deadly weapon	4
Assault with intent to do bodily harm	45
Assault with intent to kill	15
Attempt at suicide	4
Attempt to escape from guardhouse or confinement	10
Breach of arrest	177
Burglary	8
Careless handling of loaded firearms	15
Carrying concealed weapons	11
Committing a nuisance	26
Conduct causing arrest by civil authorities	27
Creating a disturbance	9
Destroying public property	17
Discharging firearms without cause, endangering life	2
Disobedience of standing orders or regulations	183
Disobeying commissioned officer	93
Disobeying noncommissioned officer	334
Disobeying sentinel	12
Disgraceful conduct, indecent, infamous, and unnatural practices	22
Disorderly conduct	107
Disposing of clothing	16
Disrespect to noncommissioned officer	55
Disrespect to sentinel	7
Disrespect to superior officer	37
Drunk and disorderly	136
Drunkenness	235
Drunkenness, etc., causing arrest by civil authorities	31
Drunkenness incapacitating for duty	74
Embezzlement	8
Escaping from guard or sentinel	63
Escaping from guardhouse	39
Failure to pay debts	6
False statement or report	170
False swearing	6
Fighting	6
Forgery	48
Fraud	16
Fraudulent enlistment	235
Indecent conduct	26
Indecent exposure of person	4
Insubordinate conduct toward commissioned officer	34

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Sixty-second article of war—Continued.

Insubordinate conduct toward noncommissioned officer	61
Introducing liquor into camp, quarters, etc	50
Larceny	317
Leaving post	3
Leaving ranks without permission	4
Losing arms, accouterments, stores, etc	43
Malingering	1
Manslaughter	1
Neglect of duty	161
Obtaining money or property under false pretenses	24
Pawning borrowed property	6
Perjury	14
Permitting member of guard or prisoner to obtain intoxicating liquor	14
Rape	2
Refusing to submit to surgical operation or medical treatment	5
Resisting arrest	86
Robbery	12
Selling, losing, or wasting government property	5
Selling or pawning stolen property	11
Sleeping while on duty	4
Sodomy	12
Striking noncommissioned officer	25
Threatening noncommissioned officer	66
Treatening to kill	4
Threatening soldier	9
Threatening superior officer	8
Threatening to do bodily harm	4
Unlawful disposition of clothing	7
Using insubordinate language	15
Using insulting and abusive language	99
Using profane and indecent language	28
Using threatening and abusive language	77
Disorder, etc., charged as "conduct to the prejudice of good order and military discipline" (not included under previous heads)	609

SENTENCES OF COMMISSIONED OFFICERS.

Seven officers were dismissed by sentence as against 10 last year and 3 the year before last. In 4 cases the sentence of dismissal was confirmed by the President but commuted to loss of rank.

DESERTION.

During the year covered by this report there were 1,305 convictions of desertion as against 1,695 for the previous year; being a decrease of about 23 per cent.

The acting judge-advocate, Department of the Missouri, states that of the 204 convictions in that department, 186 were of desertions during first enlistment, 75 being in the first six months, 63 in the second six months, 30 in the second year, and 18 in the third year. This shows that most of the desertions occur among soldiers who are comparatively young in the service; and I concur in the view of that officer that these facts suggest the advisability of adopting a distinct method of dealing with this class of offenders that will tend more toward corrective than to the punitive measures now in force.

Formerly the executive orders prescribing the maximum limits of punishment provided for a much lighter sentence in the case of an inexperienced soldier, particularly if by surrendering himself promptly he showed a disposition to atone for the offense. It was expected that in deserving cases courts would not award dishonorable discharge, but would impose a term of confinement with forfeiture as

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a corrective punishment, giving the soldier an opportunity to return to duty with the colors and redeem himself, to the end that the Government should not be deprived of the services of one who, as a result of such corrective punishment, would probably become a good soldier.

Recently the executive order has been amended so as to prescribe one limit of three years with dishonorable discharge and forfeiture of pay and allowances for all cases of desertion; but it was not intended by such amendment to deprive the courts of the discretion to decide according to the circumstances of each case—the length of the soldier's absence, whether he surrendered himself or was apprehended, whether he was a recruit or an old soldier, etc.—as to what the proper punishment should be.

It has been found, however, that there has been a tendency to impose dishonorable discharge in nearly all cases of desertion, regardless of any mitigating circumstances.

This tendency to mete out the extreme and degrading punishment of dishonorable discharge, even to young and inexperienced soldiers who, it is quite certain, have failed to grasp the enormity of their offense in deserting, will, if unchecked, draw the discipline of the army further and further away from the trend, not only of modern criminology, but also, it is believed, of the modern trend of military discipline toward corrective, rather than merely punitive measures. It is recommended that the attention of Department Commanders be invited to this tendency with a view to corrective punishments without dishonorable discharge, not only of deserters but also of other offenders, in the cases of inexperienced soldiers where, in the opinion of the court, such punishment will probably have the effect of reforming the soldier. This would be in line with modern penology, and it would also be more just to a class of offenders who, by reason of their inexperience, were probably ignorant of the gravity of their offenses.

INFERIOR COURTS-MARTIAL.

The following table is compiled from the reports of the judge-advocates of departments and shows approximately the number of trials of enlisted men during the year by garrison, regimental, and summary courts, the number of acquittals, and the number of different men tried:

Department.	Garrison courts-martial.			Summary courts-martial.		
	Trials.	Acquittals.	Men tried.	Trials.	Acquittals.	Men tried.
California	4	2	6	3,441	80	2,220
Colorado	5	2	5	1,039	20	625
Columbia	27	6	21	2,671	78	1,663
Dakota	24	5	22	2,278	41	1,277
East	116	43	115	11,183	337	6,128
Gulf	17	0	11	2,368	47	1,410
Lakes	6	0	6	2,642	58	1,576
Missouri	33	7	28	6,369	221	3,970
Texas	9	0	9	2,484	79	1,416
Luzon	44	11	44	4,480	189	2,570
Mindanao	36	15	35	2,032	89	1,260
Visayas	25	5	25	1,288	27	909
Total	[a] 346	96	327	42,275	1,216	25,024

[a] Including 39 trials by regimental court-martial, 6 being in the Department of Luzon, 25 in the Department of the Missouri, 4 in the Department of the Gulf, and 4 in the Department of Texas.

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The table shows that the garrison and regimental courts-martial have been largely superseded in practice by the summary court; the proportion of trials by the former courts, as compared with the latter, being approximately as 1 to 122. Last year the proportion was as 1 to 143, and year before last, as 1 to 144.

The percentages of trials by summary court in the army for the last three years, as based on the average enlisted strength, are about 69, 64, and 57, respectively, showing a decrease of about 7 per cent for this year, as compared with a decrease of 5 per cent for last year.

The percentages of enlisted men tried by summary court, where the necessary data are given, for the last three years, are 47, 40, and 33, respectively, showing a marked improvement as to the number of men tried. Of the men tried many were tried only once; and it is safe to say that during the year covered by this report probably not more than one man out of every five or six was brought before a court-martial more than once for purposes of discipline.

In cases where the trials are frequent and the offender appears to be incorrigible provision is made for trial by a general court-martial, although the offense may be one which would ordinarily be tried by summary court, and on proof of five previous convictions within one year preceding the offense charged, the court is under certain circumstances empowered to impose dishonorable discharge together with forfeiture of pay and allowances and a prescribed period of confinement. In this way the service is relieved of undesirable men who are enlisted, notwithstanding the efforts which are constantly being put forth to secure the best possible material for enlistment in the army. The reports from three of the departments indicate that about 20 per cent of the dishonorable discharges in those departments were awarded through the use of previous convictions.

The following table shows approximately the number of convictions of different offenses by inferior courts-martial during the year:

Absence, unauthorized:	
(a) Under thirty-second article of war	15,274
(b) Under thirty-third article of war	11,598
(c) Under sixty-second article of war	3,446
Assault, assault and battery, threats, etc	585
Breach of arrest	1,240
Clothing:	
(a) Losing	249
(b) Selling	37
(c) Spoiling	20
Conduct causing arrest by civil authorities	424
Disobedience	4,411
Disorderly conduct	1,457
Disrespect	1,364
Drunkenness on duty	2,059
Drunkenness not on duty	3,365
Drunk and disorderly	2,614
False statements	857
Indecent conduct	132
Insubordinate conduct	1,432
Property, public:	
(a) Losing	65
(b) Selling	9
(c) Spoiling	82
Neglect of duty	4,146
Nuisance, committing	479
Uncleanliness	845
Other offenses not included above	2,731

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The following table gives the percentages of trials by summary court, by departments, based on the average enlisted strength, for the last three years:

Department.	Percentage.			Department.	Percentage.		
	1908.	1909.	1910.		1908.	1909.	1910.
California	56	54	55	Gulf	68	75	50
Colorado	78	61	61	Lakes	103	117	75
Columbia	71	63	50	Missouri	69	74	63
Dakota	91	93	93	Texas	78	82	81
East	75	70	62	Philippines Division	69	65	63

As already stated, the percentages of trials for the entire army for the last three years are about 69, 64, and 57, respectively. The table shows that in several of the departments, particularly the Department of the Columbia, the East, the Gulf, Missouri, and the Lakes, there has been a marked improvement as to the percentage of trials, while there has been no corresponding improvement in the Departments of Dakota and Texas. Moreover, the percentages of trials for the last two departments named are 93 and 81, respectively, which are considerably larger than the percentage for the entire army. No reason is seen why the percentages in these departments should be so great, other than the failure to observe the requirements of paragraph 961 of the Army Regulations, which provides:

Commanding officers are not required to bring every dereliction of duty before a court for trial, but will endeavor to prevent their recurrence by admonitions, withholding of privileges, and taking such steps as may be necessary to enforce their orders. Company commanders are authorized, subject to the control of the commanding officer of the post, to dispose of cases of derelictions of duty in their commands which would be within the jurisdiction of inferior courts-martial by requiring extra tours of fatigue, unless the soldier concerned demands a trial. This right to demand a trial must be made known to him.

The same requirement is embodied in the official Manual for Courts-Martial.

On this subject the judge-advocate, Department of Texas, says:

This increase in the trials, slight though it may be, is regrettable, and, I am constrained to believe, is wholly unnecessary. As I have had occasion to remark before, recourse is had altogether too frequently to the court-martial, and especially to the summary court, for the enforcement of discipline. In a great measure, in my judgment, the absence from their commands of so many captains contributes largely to this situation. The command, the control, the welfare, and the discipline of troops are left too frequently in the hands of young and inexperienced officers, who resort to the summary court as a means of punishment, either because it is the easiest and least troublesome way or because they are ignorant of a better and more satisfactory means. In this connection I would suggest that some sort of a statement should be required, preferably in the monthly summary court report, showing the number of times and character of the means used to discipline men before sending them before a summary court for trial. Officers preferring charges for trial before summary court should be required to accompany them with a statement that they have carefully investigated them and that they believe they can be sustained. This investigation should include the witnesses for the prosecution and the defense and the accused himself. Noncommissioned officers not infrequently report men to the organization commanders for derelictions, and the officer, acting wholly on this ex parte statement, directs charges to be preferred without giving the matter a personal investigation.

It is not believed, however, that it is fair to throw the entire responsibility in the matter upon the young and inexperienced officers, but

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that the responsibility rests largely with the post commanders who should see that the requirements of the regulation are observed within their commands.

On the same subject the commanding general Department of the Gulf, in a circular letter addressed to the post commanders in his department, by the following clear and explicit instructions fixed the responsibility for an excessive number of trials:

The department commander has no wish to attempt to control the proper discretion of post commanders in deciding what offenses shall be tried and what shall not, but he believes if post commanders will scrutinize with care the charges preferred by company commanders, not only will desirable discipline be maintained, but a considerable and desirable reduction of the number of trials by summary court will result.

The determination of whether offenses shall be tried or otherwise disciplined rests entirely with commanding officers and not with company commanders, and if the number of summary court trials is unduly large, the fault is that of the commanding officer who permitted the charges to be so referred.

Post commanders are therefore enjoined to closely scrutinize all minor charges preferred and to require organization commanders to resort to disciplinary punishments authorized by paragraph 961, Army Regulations, whenever such will meet the interests of discipline.

Regarding the trials by summary court in the Department of the Missouri, the acting judge-advocate of that department says:

Of the 6,330 trials by summary court, 2,228 were for first and trivial offenses, many of which, it is believed, could have been disposed of through resort to the summary method prescribed by paragraph 960, Army Regulations. A more careful scrutiny of charges by commanding officers, as well as a more careful preliminary investigation of offenses would tend to materially reduce the number of trials.

SALES OF CLOTHING BY ENLISTED MEN.

In the annual report of this office for the year 1908 it was said:

The practice of selling clothing issued to enlisted men continues to exist in spite of the efforts looking to its suppression which have been put forth by the department in recent years. The clothing so unlawfully disposed of represents a considerable cost to the United States, as is indicated by the quantities which have been taken possession of while in the hands of receivers. The offenders have been vigorously prosecuted in several jurisdictions, but not always with success corresponding to the efforts that are put forth with a view to secure convictions and the United States has been obliged to suffer a considerable pecuniary loss in replacing the articles of clothing and equipage thus criminally disposed of. In order to remove the objection in some jurisdictions to the severity of the penalty imposed by section 5438, Revised Statutes, upon a civilian purchasing the clothing, as compared with that imposed under the seventeenth article of war on the soldier for selling it, section 5438, Revised Statutes, was amended by act of May 30, 1908, so as to considerably lessen the penalty, providing that the offender "shall be punished by imprisonment for not more than two years and by a fine not exceeding five hundred dollars."

The maximum punishment order was amended November 25, 1908, so as to prescribe a punishment for the offense of selling clothing of dishonorable discharge with forfeiture of pay and allowances and confinement at hard labor for one year. This limit now bears some relation to the maximum penalty provided by section 5438, Revised Statutes, upon the other party to the offense. In the said report of this office it was said:

If this were done, and if provision were made for taking up the uniform clothing of a soldier upon his discharge at the appraised value, the military authorities would meet with less difficulty in enforcing the law against its sale. Such action would emphasize the fact that the War Department regards the uniform clothing issued to a soldier for his use in the military service as the property of the United States in the same sense that "his horse, arms, * * * or accoutrements" belong to the United States; and that the prescribed allowances for clothing are simply a means of regulating

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the amount of expendable property of this character which a soldier may have issued to him without charging the same to his pay. The savings, if any, should be regarded as a premium to induce careful use of such property.

* * * * * * *

Where public property, including arms and clothing, is condemned and disposed of by the Government, it should be so marked that it would appear from an inspection of the same that its disposition had been duly authorized.

The amendment of section 5438, Revised Statutes (now sec. 35 of the Criminal Code of Mar. 4, 1909; 35 Stat. L., 1088), by the act of May 30, 1908, referred to above, made the statute applicable irrespective of any question of title of the soldier to the clothing issued to him, the statute containing the provision that it applies whether the clothing is "furnished to the soldier. * * * under a clothing allowance or otherwise."

The amendment of the statute, together with the efforts put forth to enforce its provisions, have resulted in largely decreasing the evil.

FRAUDS ON THE RECRUITING SERVICE.

A number of cases have occurred in the last few years where applications for enlistment have been made by men at recruiting stations for the purpose of obtaining subsistence and transportation to the recruiting depots—the applicant upon arrival at such depot declining to enlist. With a view to breaking up this practice efforts have been made to prosecute the offenders for embezzlement under section 5439 of the Revised Statutes (now sec. 36 of the Criminal Code of Mar. 4, 1909; 35 Stat. L., 1088). In a number of these cases these efforts have resulted in the conviction of the offender and in sentences of fine or imprisonemnt, or both, of sufficient severity to act as a strong deterrent. These efforts should be continued.

ABATEMENT OF SENTENCES FOR GOOD CONDUCT.

Under paragraph 950, Army Regulations, former enlisted men who are undergoing sentences of imprisonment in the military prison are allowed abatements of their terms of imprisonment for good conduct. In my last annual report the recommendation in the previous report that the scope of this regulation should be broadened so as to include garrison prisoners serving sentences of over three months was renewed for the following reasons: The abatement of time of confinement for good behavior has a dual object in view: First, the assistance it affords in maintaining discipline in a prison by offering a premium for good behavior, an object which is as applicable to garrison prisoners as to military convicts; second, the reformatory influence which it may have upon the prisoners. This reformatory influence would seem to be of greater value to the service when exercised over a man who is to return to the ranks than when exercised over a man who at the completion of his confinement is no longer to be allowed to serve in the army.

DRUNKENNESS.

The number of convictions by general court-martial of offenses, in which drunkenness is alleged as one the of elements, this year was 719, as against 657 last year. This represents, however, only 8 per cent of the total number of offenses.

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The number of convictions by inferior courts-martial of offenses alleging drunkenness represents about 14 per cent of the total convictions by such courts-martial.

AMENDMENT OF LEGISLATION.

Section 4 of the act establishing the summary court, approved June 18, 1898 (30 Stat. L., 483), provides for military jurisdiction during confinement over "soldiers sentenced by court-martial to dishonorable discharge and confinement." There is no such provision as to soldiers not sentenced to dishonorable discharge, but to confinement extending beyond their terms of enlistment. They are discharged at the expiration of their enlistments, although their discharge certificates are not delivered to them until the expiration of their terms of imprisonment; and for serious offenses, such as disobedience of orders, escape, etc., nothing can be done to them beyond ordinary prison discipline. The scope of the legislation should be broadened to include the prisoners here referred to.

The act approved March 2, 1901 (31 Stat. L., 950), to prevent the failure of military justice, makes it a misdemeanor for a civilian witness "duly subpœnaed to appear as a witness before a general court-martial of the army" to refuse to appear, qualify, or testify, subject to the provisions of that act. This legislation does not apply to a civilian witness subpœnaed to appear before an officer empowered and directed to take a deposition for use before a court-martial, and its provisions should be made applicable to witnesses to such depositions.

INCREASE IN COMMISSIONED STRENGTH OF DEPARTMENT, DETAILS.

I find that the work of the office, both of the bureau in Washington and at the headquarters of the several territorial departments and divisions, is constantly increasing and has now attained such proportions as to tax unduly the permanent and detailed personnel of the department. There are 11 officers in the department, exclusive of the Judge-Advocate-General. There are 12 territorial commands, to which officers of the department are permanently attached; 1 officer is on duty as professor of law at the Military Academy; and 2 officers are constantly and busily employed in the office of the Judge-Advocate-General in the War Department. Five acting judge-advocates are now serving at headquarters of departments where it is impossible to furnish a permanent officer. In two of the departments, on account of the constantly increasing volume of business, the services of an assistant are absolutely necessary. It is therefore recommended that a moderate increase in the commissioned strength of the department be recommended to Congress. It is also recommended that the detail of three acting judge-advocates be authorized, with a view to their employment as assistants, independently of those now authorized to be detailed at places not provided with judge-advocates holding permanent commissions in the department in the operation of section 15 of the act of February 2, 1901 (31 Stat. L., 751).

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CLERKS TO JUDGE-ADVOCATES.

In their annual reports for this and preceding years several of the judge-advocates have urged the desirability of a corps of clerks to judge-advocates, pointing out that owing to the character of the work required of them it is very desirable that those who have acquired training and experience should not be replaced by a detail of inexperienced men. In this connection I invite attention to the following remarks in my annual report for 1908:

The work in the offices of judge-advocates of departments is highly technical and requires that these officers should have the assistance of experienced and competent clerks. In several departments the same clerks have been on duty for some years in the office of the judge-advocate, and the work of these offices is noticeably superior to that of other offices where the judge-advocates lack the assistance of competent clerks who can relieve them of matters of routine which interfere with their performance of more important duties. Under the present system of detail the clerks are liable to be relieved from duty in the judge-advocates' offices and replaced by inexperienced men just when their training and experience have rendered their services of the greatest value. It is highly important, therefore, that there should be a corps of judge-advocates' clerks sufficiently large to enable one to be assigned to each judge-advocate's office. In view of the character of the work, they should receive salaries equal to those now paid paymasters' clerks. In case of the absence, sickness, or disability of the clerk or in the event of the necessity of additional clerical assistance, the judge-advocate should be authorized to call upon the adjutant-general of the department headquarters for the detail of a suitable clerk to meet the emergency.

In closing this report it gives me great pleasure to recognize the efficient assistance which I have received from the officers of the department in their different fields of endeavor, and from the employees of the Judge-Advocate-General's Office. Their labors have been zealous and untiring, and the services rendered by them have been entirely satisfactory.

Very respectfully,

GEO. B. DAVIS,
Judge-Advocate-General.

The SECRETARY OF WAR.

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REPORT OF THE QUARTERMASTER-GENERAL.

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REPORT OF THE QUARTERMASTER-GENERAL.

WAR DEPARTMENT,
OFFICE OF THE QUARTERMASTER-GENERAL,
Washington, September 22, 1910.

SIR: I have the honor to submit the annual report of the operations of the Quartermaster's Department for the fiscal year ended June 30, 1910.

DUTIES OF THE QUARTERMASTER'S DEPARTMENT.

This subject was fully discussed on pages 36, 37, and 38 of the Quartermaster-General's annual report for the fiscal year 1909.

PERSONNEL.

The personnel of the Quartermaster's Department comprises 96 commissioned officers as follows: One brigadier-general, 6 colonels, 9 lieutenant-colonels, 20 majors, and 60 captains; 200 post quartermaster sergeants, 200 enlisted men of the army general service detachment, West Point, and a large number of civilian employees distributed throughout the United States and insular possessions. Of the 60 captains, 12 belong to the permanent establishment, and 48 are serving by detail.

During the fiscal year 5 colonels of the permanent establishment were retired, and 1 captain resigned. Among the detailed captains 13 were relieved during the year, 8 by expiration of detail, 1 by promotion to a higher grade in the line, 2 upon request, 1 resigned, and 1 was relieved for the good of the service. The 19 vacancies in the list of captains, due to casualties among the permanent and detailed officers of the department, were filled by details from the line of the army as provided by law.

In addition to the above regular force, there were on June 30, 1910, serving by assignment to duty as acting quartermaster, 100 officers of the line on duty in the department, in the office of the Quartermaster-General, in charge of construction work at various posts, as assistants to chief and depot quartermasters, in charge of transports and other quartermaster's duties.

During the year 9 post quartermaster sergeants were retired, 2 purchased discharge, and 1 was dishonorably discharged, making a total of 12 vacancies, which were filled by appointment from the line.

In the table which follows, mention is made of the places where the officers of the Quartermaster's Department and those assigned to duty therein are serving and of the nature of the duties performed by them. It will be seen that the number of line officers assigned to duty as acting quartermasters exceeds by four the number of those

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belonging to the department as authorized by law. In this no account is taken of line officers serving as post quartermasters at posts in the United States and its island possessions, other than the 61 mentioned in the table at which permanent and detailed officers and those temporarily assigned to duty in the Quartermaster's Department are serving in that capacity in addition to their other duties.

The subject of shortage of officers for properly carrying on the work devolving upon the Quartermaster's Department is more fully touched upon in another part of this report.

Duty.	Officers of the Quartermaster's Department. Rank. Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	Total.	Officers of the line detailed as acting quartermasters. Rank. Lieutenant-colonel.	Major.	Captain.	Lieutenant.	Total.	Grand total.
Quartermaster-General's office	1	1		4	9	15			1		1	16
Army War College (completing course)			1			1						1
Detached duty, Panama Canal Commission			1			1						1
Chief quartermasters and assistants:												
Department of California		1				1						1
Department of the Colorado					1	1						1
Department of the Columbia			1			2						2
Assistant (also disbursing quartermaster, Portland, Oreg.) a					1							
Department of Dakota				1		1						1
Department of the East			1			2						2
Assistant					1							
Department of the Gulf				1		1						1
Department of the Lakes			1			3						3
Assistants					2							
Department of the Missouri			1			1						2
Assistant										1	1	
Department of Texas		1				1						1
Philippines Division			1			7				1	1	14
Assistant, land transport quartermaster					1							
Assistant, water transport quartermaster b					1							
Assistants					2							
Report of assignment not received					1							
Post quartermaster, Fort Mills, P. I.					1							
Assistant to land transport quartermaster										1	6	
Assistant to water transport quartermaster										1		
At division hospital									1			
In charge of Batan Island, Philippine Islands, coal mine										1		
In charge of Overton-Keithly road									1	1		
Department of Luzon				1		1						2
Assistant										1	1	
Department of Mindanao				1		1						1
Department of the Visayas					1	1						1
General depots:												
New York, N. Y.				1		4		1			1	5
Assistants				3								
Philadelphia, Pa.				1		4			1		1	5
Assistants				1	2							
Jeffersonville, Ind., major, assistant (temporarily in charge)—												
Assistants				1	1	2						2
San Francisco, Cal., major, assistant (temporarily in charge; also in charge general superintendent's office, army transport service) c—												
Assistants				1	2	3						3
Manila, P. I.				1		2						2
Assistant					1							
St. Louis, Mo.				1		2						2
Assistant					1							
Omaha, Nebr.					1	1						1
Washington, D. C.					1	1						1
Boston, Mass.					1	2						2
Assistant (also constructing quartermaster)					1							
Fort Keogh remount depot					1	1						2
Assistant										1	1	
Fort Reno remount depot									1		3	3
Assistants										2		

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Duty.	Officers of the Quartermaster's Department. Rank. Brigadier-general.	Colonel.	Lieutenant-colonel.	Major.	Captain.	Total.	Officers of the line detailed as acting quartermasters. Rank. Lieutenant-colonel.	Major.	Captain.	Lieutenant.	Total.	Grand total.
Depots and purchasing and distributing offices:												
Honolulu, Hawaii (also constructing quartermaster and in charge of army transport service)					1	1						1
Pittsburg, Pa									1		1	1
New Orleans, La. (also constructing quartermaster)					1	1						1
Nagasaki, Japan					1	1						1
Seattle, Wash. (also in charge of army transport service, Puget Sound)		1				1						1
Portland, Oreg. (also assistant to chief quartermaster, Department of the Columbia)												(a)
Purchasing animals					1	1						1
Depot for animals awaiting shipment to Philippine Islands									1		1	1
Constructing quartermasters			1	1	7	9		2	4	1	7	16
Post quartermasters			1		1	2						2
Post and constructing quartermasters (in addition to line or corps duties)					4	4			22	33	55	59
Assistants to constructing quartermasters					1	1				1	1	2
Transport service:												
Manila, P. I.—												
Assistant to division chief quartermaster												(b)
San Francisco, Cal.—												
Assistant to depot quartermaster												(c)
On transports and other vessels					2	2			6	12	18	20
Military prisons				*1	2	3	*1				1	4
En route changing stations					2	2						2
Awaiting retirement					1	1						1
Inspecting supplies being manufactured					1	1						1
Inspecting forage for shipment to Philippine Islands					1	1						1
On leave of absence		2			1	3						3
Total	1	6	9	20	60	96	1	3	39	57	100	196

RECAPITULATION.

Quartermaster-General's office	1	1		4	9	15			1		1	16
General Staff			1			1						1
Detached duty—Panama Canal Commission			1			1						1
Chief quartermasters		2	5	4	2	13						13
Assistants to chief quartermasters a b					8	8				2	2	10
Philippines Division (other than as assistants to division chief quartermaster)					2	2			2	5	7	9
General depots—in charge				6	3	9						9
Assistants c				4	8	12		1	1		2	14
Depots and purchasing and distributing officers—in charge a		1			5	6			3		3	9
Assistants										3	3	3
Constructing quartermasters			1	1	7	9		2	4	1	7	16
Post quartermasters			1		1	2						2
Post and constructing quartermasters					†4	4			22	33	55	59
Assistants to constructing quartermasters					1	1				1	1	2
Transport service—shore duty b c												
On transports and other vessels					2	2			6	12	18	20
Military prisons—in charge				*1		1	*1				1	2
Assistants					2	2						2
En route changing station					2	2						2
Awaiting retirement					1	1						1
Inspecting supplies being manufactured					1	1						1
Inspecting forage for shipment to the Philippine Islands					1	1						1
On leave of absence		2			1	3						3
Total	1	6	9	20	60	96	1	3	39	57	100	196
In the United States	1	6	7	17	51	82	1	3	36	45	55	167
In the Philippine Islands			2	3	9	14			3	12	15	29
Total	1	6	9	20	60	96	1	3	39	57	100	196

* Commanding and in charge of construction. † Recruit depots.

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CONSOLIDATED FINANCIAL STATEMENT. FISCAL YEAR ENDED JUNE 30, 1910.

By acts of Congress and allotments there was credited to the regular service of the Quartermaster's Department for the year ending June 30, 1910, the sum of	$40,332,750.16	
During the fiscal year 1910 there was deposited to the credit of appropriations from the various sources, as shown, the sum of	3,679,019.51	
Making a total of		$44,011,769.67
Of this there was remitted to disbursing officers the sum of	35,606,978.43	
Also there was paid on account of settlements made at the Treasury, etc., the further sum of	399,995.01	
		36,006,973.44
Leaving a balance on hand July 1, 1910, available for the payment of outstanding obligations, the sum of		8,004,796.23
On July 1, 1909, there was on hand from the regular appropriations for service of the Quartermaster's Department, pertaining to the fiscal year 1909	5,708,990.07	
From appropriations of other fiscal years, including all indefinite appropriations	5,419,123.76	
For special purposes there was appropriated and allotted during the year ended June 30, 1910	5,827,217.59	
During the fiscal year there was deposited to the credit of appropriations (other than those of 1910 shown above) from various sources	2,059,969.94	
		19,015,301.36
Of this there was remitted to disbursing officers	10,240,965.00	
Paid out on account of Treasury settlements, etc	292,305.27	
Carried to the surplus fund	977,695.32	
		11,510,965.59
Leaving a balance on hand July 1, 1910, of		7,504,335.77

RECAPITULATION.

Remitted to disbursing officers and paid out on Treasury settlements, etc., from appropriations for fiscal year ending June 30, 1910	36,006,973.44	
And from appropriations of other fiscal years and from special or indefinite appropriations	11,510,965.59	
		47,517,939.03
Balance remaining in the Treasury July 1, 1910, of appropriations for the regular service of the Quartermaster's Department for the fiscal year ending June 30, 1910	8,004,796.23	
And of appropriations of other fiscal years and of special or indefinite appropriations	7,504,335.77	
		15,509,132.00
Grand total for fiscal year ended June 30, 1910		63,027,071.03

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Summary statement of expenditures, by appropriations for the Quartermaster's Department, for the fiscal year ended June 30, 1910.

Appropriations.	Expenditures.	Unexpended balances.	Total amount appropriated.
Regular supplies	$9,177,807.17	$122,192.83	$9,300,000.00
Equipment of officers' schools	11,071.65	928.35	12,000.00
Incidental expenses	2,171,653.84	78,346.16	2,250,000.00
Horses for cavalry, artillery, and engineers	496,334.62	13,665.38	510,000.00
Barracks and quarters	3,447,578.40	52,421.60	3,500,000.00
Military post exchanges	190,656.60	24,343.40	215,000.00
Transportation of the army	12,362,449.10	270,397.40	12,632,846.50
Roads, walks, wharves, and drainage	1,085,415.64	14,584.36	1,100,000.00
Water and sewers	2,784,871.47	34,811.53	2,819,683.00
Clothing and equipage	8,966,292.06	40,449.33	9,006,741.39
Maintenance, Army War College	12,593.38	106.62	12,700.00
Total	40,706,723.93	652,246.96	41,358,970.89

Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations.

APPROPRIATION "REGULAR SUPPLIES."

Class.	Purpose.	Amount.	Total.
Class A, supplies	Quartermaster's depots	$118,791.83	
	Independent stations and constructing quartermasters.	43,351.68	
	Department of California	29,155.12	
	Department of Colorado	11,463.11	
	Department of Columbia	27,493.15	
	Department of Dakota	11,373.28	
	Department of East	57,906.14	
	Department of Gulf	23,971.51	
	Department of Lakes	13,457.72	
	Department of Missouri	45,700.49	
	Department of Texas	14,088.13	
	Total Class A, supplies		$396,752.16
Class II, services	Quartermaster's depots, independent stations, and constructing quartermasters.	2,599.68	
	Department of California	557.25	
	Department of Colorado	327.00	
	Department of Columbia	405.00	
	Department of Dakota	647.35	
	Department of the East	244.88	
	Department of the Gulf	391.71	
	Department of the Lakes	335.11	
	Department of Missouri	992.75	
	Department of Texas	239.45	
	Total Class II, services		6,740.18
Class I, services, personal	Civilian employees	150,657.92	
	Extra duty	2,607.63	
	Total Class I, services, personal		153,265.55
Class I, services, nonpersonal.	Heat, purchase of, account rentals, including recruiting stations.	95,613.66	
	Light, purchase of electric current and gas, including light as part of rental of quarters, etc.	450,226.29	
	Subscriptions, newspapers and periodicals.	6,175.97	
	Printing blank forms, pay and quartermaster departments, and orders, etc., at headquarters of departments.	67,965.72	
	Total Class I, services, nonpersonal		619,981.64
Class B, supplies, and Class III, services.	Annual repairs and maintenance, heating apparatus.	77,567.39	
	Annual repairs, lighting plants	33,823.26	
	Total annual repairs, Class B, supplies, and Class III, services.		111,390.65

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Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations—Continued.

APPROPRIATION "REGULAR SUPPLIES"—Continued.

Class.	Purpose.	Amount.	Total.
New construction, installations and betterments.	Heating apparatus, installations in connection with new construction.	$93,434.63	
	Heating apparatus, renewals and installations other than in connection with new buildings.	200,865.54	
	Lighting fixtures in connection with construction of new buildings.	68,115.11	
	Lighting plants, renewals and installations	368,881.89	
	Ice machines, installations	65,903.02	
	Laundries, construction of	106,653.30	
	Post bakeries, construction and repair of	55,095.52	
	Fences, construction and repair of	23,901.31	
	Total new construction, installations and betterments.		$982,850.32
Miscellaneous services	Advertising, including printing and specifications.	10,419.36	
	Miscellaneous repairs, not otherwise specified herein.	7,834.19	
	Total miscellaneous services (Class IV).		18,253.55
Class D, supplies	Includes procurement of incandescent lamps, track scales, wagon scales, and other supplies not included in Class A.	114,680.68	
	Purchase and repair of typewriters	15,640.24	
	Total Class D, supplies		130,320.92
Fuel, forage, and mineral oil	Fuel	1,992,108.33	
	Forage and straw	2,729,917.89	
	Mineral oil	173,612.41	
	Total fuel, forage, and mineral oil		4,895,638.63
	Total expenditures, United States		7,315,193.60
	Apportioned Philippine Islands for all purposes of the appropriation.		1,862,613.57
	Total United States and Philippine Islands.		9,177,807.17
	Amount of the appropriation		9,300,000.00
	Unexpended balance		122,192.83

APPROPRIATION "EQUIPMENT, OFFICERS' SCHOOLS AT MILITARY POSTS."

Class A, supplies	Department of California	$318.50	
	Department of Colorado	75.00	
	Department of Columbia	506.95	
	Department of Dakota	390.49	
	Department of East	469.59	
	Department of Gulf	174.54	
	Department of Lakes	100.00	
	Department of Missouri	535.00	
	Department of Texas	215.43	
	Philippine Islands	3,500.00	
	Total Class A, supplies		$6,285.50
Class D, supplies	Instruments purchased by engineer department.	4,000.00	
	Purchases by Quartermaster's Department.	786.15	
	Total Class D, supplies		4,786.15
	Total United States and Philippine Islands.		11,071.65
	Amount of the appropriation		12,000.00
	Balance unexpended		928.35

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Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations—Continued.

APPROPRIATION "INCIDENTAL EXPENSES."

Class.	Purpose.	Amount.	Total.
Class A, supplies	Quartermaster depots	$89,951.03	
	Independent stations and constructing quartermasters.	18,816.84	
	Department of California	13,946.84	
	Department of Colorado	6,714.49	
	Department of Columbia	12,385.94	
	Department of Dakota	4,882.52	
	Department of East	19,306.08	
	Department of Gulf	11,781.46	
	Department of Lakes	8,308.05	
	Department of Missouri	29,419.74	
	Department of Texas	9,025.07	
	Total Class A, supplies		$224,542.06
Class II, services	Depots and independent stations	3,821.71	
	Department of California	1,275.00	
	Department of Colorado	1,050.80	
	Department of Columbia	1,871.75	
	Department of Dakota	1,320.90	
	Department of East	2,074.26	
	Department of Gulf	972.15	
	Department of Lakes	2,464.84	
	Department of Missouri	1,316.30	
	Department of Texas	742.90	
	Total Class II, services		16,910.61
Class I, services, personal	Civilian employees	1,073,087.97	
	Extra duty	133,552.93	
	Deserters, apprehension of	70,912.89	
	Donations to dishonorably discharged prisoners.	15,330.00	
	Total Class I, personal		1,292,883.79
Class I, services, nonpersonal	Shoeing animals	23,996.78	
	Telegrams, payment of	45,129.56	
	Telephones, rental of	38,443.07	
	Total Class I, nonpersonal		107,569.41
Recruiting	Incidental expenses of recruiting		61,192.31
Miscellaneous	Time, fire-alarm service, notarial fees, and other services not herein specified.	4,024.08	
	Caring for post cemeteries	23,946.95	
	Interments and burial expenses	1,478.74	
	Advertising	749.19	
	Total miscellaneous		30,198.96
Class D, supplies	Flagstaffs, surgeons' instruments, electric bells, and supplies for drawing instruments, and all supplies not classified as "A."	72,014.70	
	Technical books	1,342.00	
	Total Class D, supplies		73,356.70
	Total expenditures in the United States.		1,806,653.84
	Total apportioned the Philippine Islands for all purposes of the appropriation.		365,000.00
	Total expenditures		2,171,653.84
	Amount of the appropriation		2,250,000.00
	Unexpended balance		78,346.16

APPROPRIATION "HORSES, CAVALRY, ARTILLERY, AND ENGINEERS."

Class D	Purchase of horses, United States and Philippine Islands.	$495,014.86	
Class IV	Advertising	1,319.76	
	Total expenditures		$496,334.62
	Amount of the appropriation		510,000.00
	Unexpended balance		13,665.38

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Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations—Continued.

APPROPRIATION "BARRACKS AND QUARTERS."

Class.	Purpose.	Amount.	Total.
Class A, supplies	Supplies to independent stations for tools, etc.		$9,417.16
Class D, supplies	Supplies, general		1,693.67
Class I, personal	Civilian employees	$99,863.88	
	Extra duty	11,177.11	
	Total Class I, personal services		111,040.79
Class I, nonpersonal	Annual rentals		375,501.36
Class II	Services, general		20,855.19
Class IV, services	Advertising	8,593.93	
	Miscellanecus	3,450.56	
	Total Class IV, services		12,044.49
Class B and Class III	Annual repairs		491,103.38
New construction	Construction barracks, quarters, storehouses, etc.		1,835,358.55
Miscellaneous	Minor new construction	129,711.81	
	Furniture	208,128.61	
	Refrigerators	10,499.85	
	Screens, storm doors, etc	40,684.71	
	Special repairs, alterations, etc	157,827.01	
	Wall lockers	43,711.82	
	Total miscellaneous		590,563.81
	Total expenditures		3,447,578.40
	Amount of the appropriation		3,500,000.00
	Unexpended balance		52,421.60

APPROPRIATION "MILITARY POST EXCHANGES."

Class D	Bowling alley and gymnasium supplies, etc.		$5,921.65
Class IV	Construction and equipment	$113,418.76	
	Advertising	316.19	
	Total Class IV		113,734.95
	Total United States		119,656.60
	Apportioned Philippine Islands		71,000.00
	Total United States and Philippines		190,656.60
	Amount of the appropriation		215,000.00
	Unexpended balance		24,343.40

APPROPRIATION "TRANSPORTATION OF THE ARMY."

Class A, supplies	Depots, independent stations, and constructing quartermasters.	$132,312.29	
	Department of California	30,097.50	
	Department of Colorado	13,876.54	
	Department of Columbia	26,917.58	
	Department of Dakota	13,187.77	
	Department of East	71,501.09	
	Department of Gulf	32,710.11	
	Department of Lakes	17,603.96	
	Department of Missouri	66,895.28	
	Department of Texas	19,853.40	
	Total Class A, supplies		$424,955.52
Class II, services	Depots, independent stations, etc	11,396.95	
	Department of California	3,172.00	
	Department of Colorado	2,418.98	
	Department of Columbia	8,223.25	
	Department of Dakota	4,413.46	
	Department of East	13,641.88	
	Department of Gulf	5,033.80	
	Department of Lakes	4,142.21	
	Department of Missouri	7,804.93	
	Department of Texas	2,465.48	
	Total Class II, services		62,712.94

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Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations—Continued.

APPROPRIATION "TRANSPORTATION OF THE ARMY"—Continued.

Class.	Purpose.	Amount.	Total.
Class I, personal	Civilian employees	$2,773,440.51	
	Extra duty	32,707.74	
	Reimbursement, travel expenses	51,621.49	
	Total Class I, personal		$2,857,769.47
Class I, nonpersonal	Drayage	157,942.33	
	Tolls and ferriages	3,419.60	
	Wharfage	51,091.56	
	Transportation accounts	3,361,068.99	
	Total Class I, nonpersonal		3,573,522.48
Harbor boats, supplies, and services.	Fuel, harbor boats	273,636.67	
	Purchase of harbor boats	366,508.08	
	Repair of harbor boats	128,790.87	
	Hire and charter of boats	28,750.04	
	Water, harbor boats	12,996.58	
	Class D, supplies, harbor boats	14,587.17	
	Total harbor boats		825,269.41
Army transport service	Fuel	336,771.58	
	Class A, supplies	151,728.58	
	Class D, supplies	20,668.18	
	Water, stevedoring, pilotage, etc	196,711.05	
	Repairs of transports	886,516.97	
	Total transport service		1,572,396.36
Miscellaneous supplies and services.	Advertising	3,601.61	
	Purchase draft and pack animals	218,243.13	
	Purchase railroad equipment	11,500.96	
	Class D, supplies for posts, depots, constructing quartermasters, etc.	119,049.07	
	Class IV, services, posts, depots, constructing quartermasters, etc.	8,095.15	
	Total miscellaneous supplies and services.		360,489.92
	Total expenditures, United States		9,677,166.10
	Apportioned the Philippine Islands for all purposes of the appropriation.		2,685,333.00
	Total United States and Philippine Islands.		12,362,449.10
	Total of the appropriation		12,632,846.50
	Unexpended balance		270,397.40

APPROPRIATION "ROADS, WALKS, WHARVES, AND DRAINAGE."

Class II, services	Department of California	$350.00	
	Department of Columbia	100.00	
	Department of East	4.50	
	Department of Gulf	127.00	
	Depots and independent stations	250.00	
	Total Class II, services		$831.50
Class I, personal	Civilian employees	20,071.61	
	Extra duty	7,596.40	
	Total Class I, personal		27,668.01
Class D, supplies	Supplies not included in apportionments for Class B and Class III.		13,969.51
Class B and Class III	Care and improvement of grounds	35,813.97	
	Drainage repairs	17,250.20	
	Roads, repair of	78,677.89	
	Walks, repair of	17,898.93	
	Wharves, repair of	27,936.13	
	Total Class B and Class III		177,577.12
New construction and betterments.	Drainage projects	157,993.80	
	Dredging channels	49,053.14	
	Roads, construction of	397,450.17	
	Walks, construction of	76,257.13	
	Wharves, construction of	60,206.41	
	Total new construction and betterments.		740,960.65

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Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations—Continued.

APPROPRIATION "ROADS, WALKS, WHARVES, AND DRAINAGE"—Continued.

Class.	Purpose.	Amount.	Total.
Class IV	Advertising		$3,467.85
	Total expenditures, United States		964,474.64
	Apportioned to Philippine Islands for all purposes of the appropriation.		120,941.00
	Total United States and Philippine Islands.		1,085,415.64
	Amount of the appropriation		1,100,000.00
	Unexpended balance		14,584.36

APPROPRIATION "WATER AND SEWERS, MILITARY POSTS."

Class.	Purpose.	Amount.	Total.
Class A, supplies	Depots, independent stations, and constructing quartermasters.	$14,464.50	
	Department of California	2,207.06	
	Department of Colorado	1,200.00	
	Department of Columbia	5,090.06	
	Department of Dakota	2,590.53	
	Department of East	9,033.14	
	Department of Gulf	12,778.90	
	Department of Lakes	3,338.19	
	Department of Missouri	8,500.00	
	Department of Texas	2,000.00	
	Total Class A, supplies		$61,202.38
Class II, services	Depots, independent stations, and constructing quartermasters.	139.40	
	Department of California	1,200.00	
	Department of Colorado	302.43	
	Department of Columbia	765.00	
	Department of Dakota	486.77	
	Department of East	1,146.39	
	Department of Gulf	3,182.26	
	Department of Lakes	513.68	
	Department of Missouri	2,869.48	
	Department of Texas	410.66	
	Total Class II, services		11,016.07
Class I, personal	Civilian employees	304,705.34	
	Extra duty	18,569.85	
	Total Class I, personal services		323,275.19
Class I, nonpersonal	Purchase of water	243,824.92	
	Garbage, disposal of	10,148.40	
	Total Class I, nonpersonal		253,973.32
Class IV, services	Advertising	5,635.50	
	Miscellaneous services	9,626.36	
	Total Class IV, services		15,261.86
Class B and Class III	Annual repairs		70,884.56
Miscellaneous	Fuel for pumping plants	155,865.67	
	Class D, supplies	9,914.29	
	Sterilizers, incinerators, etc	36,994.88	
	Total miscellaneous		202,774.84
New construction, betterments, etc.	Fire apparatus, purchase of	109,706.79	
	Garbage crematories, construction of	28,118.83	
	Plumbing in new buildings	147,664.32	
	Repairs to plumbing in buildings	165,791.68	
	Construction of water and sewer systems	917,201.63	
	Total new construction and betterments.		1,368,483.25
	Total expenditures, United States		2,306,871.47
	Amount apportioned Philippine Islands for all purposes of the appropriation.		478,000.00
	Total United States and Philippine Islands.		2,784,871.47
	Amount of appropriation	2,859,683.00	
	Transferred by Treasury warrant to "Water supply, Fort William Henry Harrison."	40,000.00	
	Balance of appropriation available		2,819,683.00
	Unexpended balance		34,811.53

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Detailed statement of expenditures of the Quartermaster's Department for the fiscal year ended June 30, 1910, itemized under different appropriations—Continued.

APPROPRIATION "CLOTHING, CAMP AND GARRISON EQUIPAGE."

Class.	Purpose.	Amount.	Total.
Class A, supplies	Depots, recruit depots, independent stations.	$36,065.02	
	Department of California	33,549.32	
	Department of Colorado	12,185.78	
	Department of Columbia	23,223.58	
	Department of Dakota	17,450.00	
	Department of East	40,381.92	
	Department of Gulf	19,754.96	
	Department of Lakes	24,190.60	
	Department of Missouri	35,858.04	
	Department of Texas	18,025.00	
	Civilian outer clothing for dishonorably discharged prisoners.	23,667.79	
	Packing materials for care, etc., of clothing and equipage.	117,848.92	
	Total Class A, supplies		$402,200.93
Class I	Civilian employees		369,215.28
Class II	Altering, fitting, washing, etc.		21,171.36
Class D, supplies	Equipage not listed as Class A	23,633.11	
	Band instruments, purchase and repair of	39,098.03	
	Field desks	5,476.95	
	Trunk lockers	95,500.31	
	Total, Class D, supplies		163,708.40
Class IV	Advertising		11,099.06
Contracts	Procurement of materials for manufacture of clothing, purchase of clothing, manufacture of clothing, purchase of equipage.		7,950,311.15
	Total expenditures, United States		8,917,706.18
	Apportioned Philippine Islands		48,585.88
	Total United States and Philippine Islands.		8,966,292.06
	Amount of the appropriation	7,000,000.00	
	Credits due to transfers of clothing and equipage to organized militia.	1,998,387.05	
	Sales and collections	8,354.34	
			9,006,741.39
	Unexpended balance		40,449.33

APPROPRIATION "MAINTENANCE, ARMY WAR COLLEGE."

Class I, personal	Civilian employees	$5,700.00	
Class I, nonpersonal	Light	3,121.40	
Class A	Fuel	3,771.98	
	Total		$12,593.38
	Amount of the appropriation		12,700.00
	Unexpended balance		106.62

BUSINESS METHODS.

The fiscal year 1910 completes the second year of operation of the department's system of decentralization for procurement of supplies and engagement of services, established by authority of General Orders, Nos. 18, 73, and 176, War Department, 1908, and extended by General Orders, No. 28, War Department, 1909.

The methods first put into effect by Circulars 1 and 11, Office of the Quartermaster-General, 1908, and under which operations of the fiscal year 1909 were conducted, were much simplified by Circulars 6 and 7, Office of the Quartermaster-General, 1909, with gratifying results both in this office and in the department at large. The method of furnishing supplies on the basis of an apportionment of funds of their estimated money value for a fixed period of time was

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extended by Circular 2, Office of the Quartermaster-General, March 17, 1910, to clothing required for issue to enlisted men at all posts and stations in the United States, Porto Rico, and Hawaiian Islands, to take effect with issues beginning with the fiscal year 1911.

It is now thoroughly understood that in the matter of apportionments and allotments of funds the officers in actual service with troops and at military posts and stations stand in the same relation to this office, as far as funds with which to procure quartermaster supplies and services are concerned, that this office stands to appropriations made by Congress. A proper proportion of the appropriations made by Congress for the support of the army is apportioned to the chief quartermasters of territorial military divisions and departments, and to quartermasters at independent stations, to be by them in turn allotted to the quartermasters at posts of the division or department, or directly disbursed. The results then depend largely upon the administrative ability with which the funds available are used, and there is provided a means by which the qualifications of different responsible officers to make the best use of funds can be determined and results accomplished compared.

It also affords a means of making comparisons of this unit cost in each branch, or as a whole for different posts in a department, or posts in different departments, thus enabling the authorities interested to determine to what extent administrative ability of responsible officers enters as a factor in the element of cost under varying conditions of locality, and also to determine the influence that locality has upon such cost.

The tendency toward reducing appropriations in the face of increasing prices of supplies and services in almost every direction renders it especially important that the department shall have at hand a trustworthy guide in its efforts to meet the desire for economy, with least detriment to efficiency, and there is no more reliable guide in such an effort than accurate knowledge of the actual cost of every article of supply and service in all the different combinations and units in which supplies and services enter into the problem.

Cost reports.—The system of cost reporting required under provision of Circular 7 has been improved and simplified by the use of new forms for that purpose. The preparation of the reports necessarily exacts care, diligence, and a considerable amount of clerical work, but the information furnished by them is the very foundation of any intelligent accounting system. The advantages of a system of cost keeping, like that instituted, have already made themselves manifest by the increased facility with which accurate information pertaining to cost of supplies and services affecting the Quartermaster's Department desired by committees and Members of Congress, as well as by the higher authorities of the military establishment, can be furnished. This is, however, only an incident of the system; its ultimate and more important purpose is to furnish a means by which it will be practicable to ascertain the cost at any locality, reduced to any required unit of organization, or even individual, of the maintenance of the military establishment, in so far as pertains to Quartermaster's Department appropriations, in its several branches of clothing, shelter, heat, light, transportation, recreation and amusement, post and camp sanitation, expenses of recruiting, enforcement of disciplinary penalties, etc.

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From reports of annual inspections of posts made by chief quartermasters of departments, from statements contained in chief quartermasters' and depot quartermasters' annual reports to this office and from comments in reports of inspections made by officers of the Inspector-General's Department, it is evident that the beneficial effects of the methods of accounting, and cost keeping in operation during the last two years are becoming apparent in many ways, but principally in the closer touch that they have brought about on the part of chief and post quartermasters with the duties of their positions, due to the feeling of increased responsibility for administrative efficiency, caused by knowledge of the fact that funds for the accomplishment of a definite purpose are placed in their hands for disbursement. With the cost of operation and upkeep, to the minutest detail during a stated period of time available, at any locality, there is found a basis for an intelligent estimate of such cost for any future period, under similar conditions.

Cost reports as now prepared by post quartermasters and furnished to the chief quartermasters of departments afford to department commanders and chief quartermasters a ready method of ascertaining the actual cost of any item of expenditure incident to post administration pertaining to the Quartermaster's Department at each post in the department and thus afford a means of comparing, item for item, cost at different posts and thus determining the extent to which the factor of personal attention and efficiency on the part of officers charged with administrative duties and the supervision of post affairs enters into the problem.

REVISIONS OF SPECIFICATIONS FOR SUPPLIES.

The department is constantly endeavoring to adapt its specifications for supplies and materials not distinctively military to like articles of high standards of excellence of general commercial production and use and readily obtainable. This increases the possible sources of supply in emergency and develops greater competition under ordinary conditions. It is of advantage to bidders in that they are not compelled to figure against the uncertainties that accompany competition for unusual productions, but may safely depend upon the resources of a market equally available to all in the line of trade affected. Among the more important specifications so revised during the fiscal year and brought into closer compliance with advanced commercial standards and practices are the following:

Mineral oil.—The specifications were modified in accordance with recommendations of the Bureau of Standards, Department of Commerce and Labor, so as to permit acceptance of any of the best grades of mineral oil produced for illuminating purposes. Requirements as to crating cans of oil for shipment were also modified to conform to the best ascertained commercial practices. These modifications have already brought about a marked reduction in prices for illuminating mineral oil over those paid for the previous fiscal year. Measures were also taken to extend the policy of making delivery of illuminating oil in carload lots at transportation centers convenient to the places where the oil would be used, and distributing it from those points in quantities required, rather than having delivery made in small quantities direct to place of consumption at increased cost of trans-

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portation from distant points of production. This method also enables the department to take advantage to a greater extent than has heretofore been practicable of reduced rates for transportation of government supplies over land-grant and bond-aided railroads.

Lubricating oils.—Modifications to conform more nearly to commercial gradings are under consideration, and consultation with the Bureau of Standards to that end is in progress. The problem is somewhat more complicated than in case of illuminating oil, because of the multiplicity of grades, and the widely varying requirements to suit purposes for which the oil is used.

Forage.—The specifications for forage have been modified so that the best grade of forage in the vicinity of the post for which required may be accepted. Not much change has been made in the specifications for hay and straw, the principal modification being in the specifications for grain. After consultation with the Bureau of Grain Standardization, Department of Agriculture, it was decided to adopt specifications providing for the moisture test for all grain, sufficient latitude being given to insure as much competition as possible. Grain testers have been purchased and installed at various points throughout the United States, where the grain will be shipped in sealed receptacles for test. The modifications were made with a view to bringing the matter of description and classification of various kinds of grains used for forage in the Quartermaster's Department in line with the practice of associations and large dealers in grain used for forage in all parts of the country. The influence of the changes made has already made itself felt in more active competition for supply of the large quantities of forage required in the Philippine Islands.

Army escort wagons.—A study is now being made of plans and specifications for an escort wagon for general garrison and field service, which, while meeting the special requirements of strength, durability, and adaptability for the service for which intended, can be manufactured from the rough material usually kept in stock by manufacturers in this line of trade. The purpose is not only to reduce the cost by increased competition, but also to enable the department, in an emergency, to obtain large quantities of such vehicles of uniform patterns in less time than is possible under present conditions, which require many parts of special forms and sizes. The cooperation of all large wagon manufacturing plants throughout the country has been invited to bring this about.

Army ambulances.—Changes have been made in the specifications for the army ambulance, in accordance with the recommendations of the board composed of officers of the Medical Department and the Quartermaster's Department. Ambulances embodying the new specifications are now being manufactured at the Jeffersonville depot, and additional ones will be ordered from time to time until the entire army is equipped with the modern ambulance. It is not the intention to supply these ambulances to displace serviceable ones of the old pattern, but to replace old-pattern ambulances worn out in service with those of the new pattern and build up a reserve stock of the latter.

Army ranges and laundry stoves.—During the fiscal year specifications for army ranges and laundry stoves have been improved upon, so as to insure greater competition, and the number of types or sizes

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of army ranges has been reduced to three—one for use in officers' quarters, one for use in quarters of noncommissioned officers, and one for use in barracks of troops.

The specifications, with working drawings and illustrations of all essential parts of ranges and laundry stoves, have recently been reprinted, and are in their present form more readily understood by all manufacturers in this line. The influence of these revisions in securing increased competition and lower prices has already become manifest in awards of contracts recently made.

Plumbing fixtures.—The plumbing fixtures heretofore specified for use in public buildings constructed by the Quartermaster's Department are of a high type of excellence, and fully answer their purpose, but on account of their departure in many small details from fixtures of the ordinary commercial type it has been found necessary for many manufacturers to have these fixtures specially made for the department, thus materially increasing cost of production. It has not been deemed advisable in part on account of inferiority in quality, but to a greater extent on account of the endless variety in forms and dimensions in which ordinary commercial plumbing fixtures are made and handled by the trade, to admit them for use in public buildings without restriction. To obviate these conditions a board, consisting of a representative from the Treasury, Navy, and War departments, was appointed in October, 1909. This board compiled new specifications from those that already existed in each department, making them conform to the standards of the manufacturers, as far as it was practicable to do so, considering the differences in the fixtures of the several manufacturers. The revised specifications were prepared, and then the principal manufactories of the country were visited and the specifications gone over in detail with their managers and made to accord with their views as to requirement of the best commercial practice. The printing of these specifications embodying the views of manufacturers and satisfactory to the board was completed in June, 1910, and it is the belief of the members of the board, and also of the manufacturers, as expressed in communications received from them, that this will result in making a uniformity of plumbing fixtures, never before known in the plumbing trade. The trouble that has often been had of a fixture being received at a post and not being of a proper size to fit in the place where it was intended to be used will not be experienced after fixtures under these specifications are introduced and come into general use.

All of the manufacturers expressed the opinion that the commercial world will largely adopt the fixtures called for in these specifications, because of the advantages outlined in the foregoing, commercial houses having had the same difficulties that the Government has experienced in want of uniformity and system in their plumbing appliances.

Clothing, material for and manufacture of.—To open competition to the fullest extent possible in the preparation of material required for, and in the manufacture of clothing and articles of equipment for the army, earnest endeavor has been made to eliminate from specifications many of the distinctive features that have heretofore existed between government and ordinary commercial practice and requirements, so that practically only the special colors and forms of

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cut of articles of outer uniform as prescribed by regulation remain to distinguish the garments worn by the soldiers from similar well-made articles of high grade to be found in the trade. The resulting benefit is twofold, in that it increases competition and greatly extends sources of supply in case of emergency.

Specific examples of some of the modifications made in material and workmanship are more fully touched upon under the heading "Clothing and equipage" in this report.

CONSTRUCTION AND REPAIR.

The table following shows the amounts appropriated and available for construction and repair of buildings, water and sewer systems, roads and walks, and incidental purposes, for the fiscal year ended June 30, 1910, including $969,142.76 from indefinite appropriations of previous years, remaining on hand on July 1, 1909, the amounts allotted therefrom and purposes for which allotted, and the unallotted balance at the close of the fiscal year. There is also shown the amounts allotted from the general appropriations for use in connection with construction and repair of buildings, heating and lighting systems, etc., and the purposes for which allotted.

The table referred to in the foregoing paragraph is followed by another which shows in detail amounts allotted for construction of new buildings at each post in the United States and cost of each building, together with cost of plumbing, heating, lighting, etc., where additional cost was involved for those items.

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Appropriation.	Available July 1, 1909.	Allotted or expended fiscal year 1910.					Unallotted balance June 30, 1910.
		New construction.	Repairs, alterations, etc.	Employees, services, etc.	Supplies, equipment, etc.	Total.	
Barracks and quarters	$3,500,000.00	$1,960,555.64	$672,837.86	[a] $485,285.36	$328,899.54	$3,447,578.40	$52,421.60
Military post exchanges	215,500.00	[b] 83,032.76	79,767.72	.....	28,356.12	191,156.60	24,343.40
Construction and repair of hospitals	455,000.00	[c] 276,346.89	178,353.11	.....	.....	454,700.00	300.00
Quarters for hospital stewards	75,000.00	[c] 44,548.00	28,442.90	.....	.....	72,990.90	2,009.10
Shooting galleries and ranges	177,176.50	[c] 28,073.77	149,102.73	.....	.....	177,176.50	.....
Military posts	924,406.65	[b] 725,660.41	45,613.91	.....	.....	771,274.32	153,132.33
Barracks and quarters, seacoast defense	1,919,598.12	[b] 1,116,299.84	143,998.65	.....	.....	1,260,298.49	659,299.63
Military prison:							
Fort Leavenworth, Kans	358,922.94	[b] 167,499.00	.....	.....	.....	167,499.00	191,423.94
San Francisco, Cal	199,780.00	[b] 101,067.11	.....	.....	.....	101,067.11	98,712.89
Army supply depot, Fort Mason, Cal	504,384.05	[b] 152,169.29	.....	.....	.....	152,169.29	[d] 352,214.76
Cavalry post, Hawaii Territory	200,000.00	.....	.....	.....	.....	.....	200,000.00
Quarters for officers and nurses, Fort Bayard, N. Mex	104,011.83	[b] 91,749.34	.....	.....	.....	91,749.34	12,262.49
Water and sewers at military posts	341,574.83	[e] 183,120.23	158,454.60	.....	.....	341,574.83	.....
Regular supplies	1,148,275.44	[f] 865,309.02	200,966.42	.....	82,000.00	1,148,275.44	.....
Incidental expenses	[g] 15,442.85	.....	5,000.00	.....	10,442.85	15,442.85	.....
Total	10,139,001.21	5,795,431.30	1,662,537.90	485,285.36	449,698.51	8,392,953.07	1,746,120.14
Barracks and quarters, Philippine Islands	358,039.15	[h] 358,039.15	.....	.....	.....	358,039.15	.....
Army storehouses, Corregidor Island, Philippine Islands	250,000.00	81,670.30	.....	.....	.....	81,670.30	168,329.70
Seacoast defenses, Philippine Islands and Hawaii	600,000.00	324,068.54	.....	.....	.....	324,068.54	275,931.46
Total for Philippine Islands	1,208,039.15	763,777.99	.....	.....	.....	763,777.99	444,261.16
Grand total	11,347,040.36	6,559,209.29	1,662,537.90	485,285.36	449,698.51	9,156,731.06	2,190,381.30

[a] Includes rentals, $374,501.36, and employees, $110,784.00.
[b] Includes installation of plumbing, heating, and lighting.
[c] Includes amounts apportioned to the Philippine Islands.
[d] There would be a deficit if all work contracted for were charged off in full. See remarks under "Special appropriations."
[e] Includes construction of garbage crematories; also plumbing in new buildings.
[f] Includes $567,484.96 for construction and extension of lighting and power plants, $53,664.83 for construction of laundries, $50,605.00 for construction of bakeries, $120,111.02 for heating apparatus in new buildings, and $73,443.21 for lighting systems in new buildings.
[g] Includes iron flagstaffs, drafting and surveying instruments, electric bells and repairs to same.
[h] Includes repairs and rentals. Division of cost not yet reported to this office.

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Statement showing buildings constructed or in course of construction in the United States from funds of the fiscal year ended June 30, 1910, from the appropriations "Barracks and quarters" (B. & Q.); "Barracks and quarters, seacoast defense" (B. & Q., S. C. D.); "Military posts" (M. P.); "Military post exchanges" (M. P. E.); "Construction and repair of hospitals" (C. & R. of H.); "Quarters for hospital stewards" (Q. H. S.); "Regular supplies" (R. S.); "Water and sewers" (W. & S.); "Shooting galleries and ranges" (S. G. & R.); "Encampment and maneuvers, organized militia" (E. & M., O. M.); and from special appropriations for construction.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910.
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies. Heating.	Regular supplies. Lighting.			
Alaska:								
Material for construction of relief cabins	B. & Q.	$1,800.00				$1,800.00	$7,360.00	Completed.
Log cabins and cache at Beaver Dam	do	3,000.00				3,000.00		Do.
Cache at Wortman's, Alaska	do	500.00				500.00		Do.
Rebuilding relief cabin at Cob Lake	do	200.00				200.00		Do.
Enlarging cellar of telegraph office and constructing dog corral at Fairbanks, Alaska.	do	1,860.00				1,860.00		
Alcatraz Island, Cal.:								
Material and labor for construction of post exchange	M. P. E.	a 500.00				500.00	107,067.16	Do.
Continuing construction of prison	Special	101,067.11				101,067.11		
Morgue building	C. & R. of H	500.05				500.05		
Shops for prison	B. & Q.	b 5,000.00				5,000.00		
Andrews, Fort, Mass.:								
Extra work on foundation of 4-set officers' quarters.	B. & Q., S. C. D	240.00				240.00	684.00	
Extra work on foundation of barracks	do	444.00				444.00		
Baker, Fort, Cal.:								
Engineer and signal storehouse	do	3,611.50				3,611.50	14,488.11	Do.
Carpenter and paint shop	do	2,345.00				2,345.00		Do.
Blacksmith shop	do	1,454.75				1,454.75		Do.
Fire apparatus house	do	1,893.90			c $59.00	1,952.90		Do.
Addition to stable	do	2,811.00			c 33.00	2,844.00		Do.
Addition to wagon shed	do	1,532.21			c 14.50	1,546.71		Do.
Converting boathouse into storehouse	do	733.25				733.25		Do.
Barrancas, Fort, Fla.:								
1 double set noncommissioned officers' quarters	do	5,487.00	c $800.00	c $300.00	c 335.07	6,922.07	26,510.67	Under construction.
Band kitchen	do	1,000.00	c 100.00		c 29.60	1,129.60		Do.
Quartermaster's storehouse	do	14,424.00	c 150.00		c 135.00	14,709.00		Do.
Extension to guardhouse	do	3,750.00				3,750.00		Do.
Barry, Fort, Cal.:								
Lavatory near stables	do	694.10				694.10	694.10	Completed.
Bayard, Fort, N. Mex.:								
Milk-storage room	C. & R. of H	1,084.00				1,084.00	191,132.00	Do.
1 double set hospital stewards' quarters	Q. H. S	7,250.00	c 900.00	550.00	d 520.00	9,220.00		Under construction.
2 single ward buildings	C. & R. of H	76,000.00	c 4,734.00	6,704.00	d 1,888.00	89,326.00		Do.
1 field officer's quarters	Special	14,960.00	c 1,400.00	c 1,150.00	c 800.00	18,310.00		Do.
3 double officers' quarters	do	59,540.00	c 5,700.00	c 4,800.00	c 3,152.00	73,192.00		Do.

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Benjamin Harrison, Fort, Ind:								
1 four-set officers' quarters	B. & Q.	22,638.00	2,828.50	2,090.00	1,174.00	28,730.50	30,659.50	Do.
Wagon shed	do	1,490.00				1,490.00		Do.
Cold-storage room and drain	do	400.00	39.00			439.00		Completed.
Bliss, Fort, Tex.:								
1 field officer's quarters	do	12,988.00	1,622.00	1,478.00	290.00	16,378.00	16,378.00	Under construction.
Boise Barracks, Idaho:								
1 single set hospital stewards' quarters	Q. H. S.	5,190.00	c 425.00	260.00	c 75.00	5,950.00	101,057.00	Do.
1 bakery building	R. S.	7,965.00	665.00	660.00	143.00	9,433.00		Do.
1 field officer's quarters	B. & Q.	14,900.00	1,570.00	1,208.00	550.00	18,228.00		Do.
1 four-set officer's quarters	do	25,985.00	4,134.00	2,480.00	1,025.00	33,624.00		Do.
2 cavalry stables	do	32,000.00	1,822.00			33,822.00		Do.
Casey, Fort, Wash.:								
Extra work on noncommissioned officers' quarters	B. & Q., S. C. D.	420.00				420.00	420.00	Completed.
Caswell, Fort, N. C.:								
Addition to quartermaster's stable	do	1,228.45				1,228.45	34,402.74	Do.
2 double officers' quarters	do	23,963.00	c 2,526.00	c 2,000.00	c 1,345.00	29,834.00		Do.
1 ordnance repair shop	do	2,350.29	c 250.00			2,600.29		Do.
Moving part of temporary barracks and fitting same for school and tailor shop.	do	300.00				300.00		
Moving mess hall and kitchen and fitting up same for subguardhouse and furniture storeroom.	do	500.00				500.00		
Columbus Barracks, Ohio:								
Administration building	M. P.	31,650.00	c 754.00	c 1,675.00	c 1,094.57	35,173.57	204,313.73	Do.
Barracks for 300 men	do	42,000.00	c 5,387.00	c 3,889.00	c 1,179.84	52,455.84		Do.
Recruit receiving barracks (75 men)	do	24,800.00	c 2,127.00	c 1,907.00	c 947.57	29,781.57		Do.
Fire station	B. & Q.	2,700.00	97.00		74.75	2,871.75		Do.
1 double set noncommissioned officers' quarters	do	5,912.00	599.00	246.50	332.00	7,089.50		Do.
Additions and alterations to building 56, for band barracks.	do	4,899.00	1,232.00	1,068.00	169.00	7,368.00		Do.
Isolation hospital	C. & R. of H.	17,929.00	c 1,183.00	1,980.00	d 654.00	21,746.00		Under construction.
Extension to administration building and mess	M. P.	26,990.50	c 513.00	c 1,688.00	c 750.00	29,941.50		Do.
Crematory building and machinery	W. & S.	3,740.00				3,740.00		Do.
Teamsters' quarters	B. & Q.	2,574.00	235.00		117.00	2,926.00		Do.
Addition to clothing storehouse	do	5,759.00			200.00	5,959.00		Do.
Flooring drill hall	do	2,514.00				2,514.00		Do.
Paint shop	do	2,130.00	271.00	243.00	103.00	2,747.00		Do.
Constitution, Fort, N. H.:								
Addition to barracks	B. & Q., S. C. D.	1,245.00				1,245.00	2,241.00	Completed.
Erection of knock-down kitchens, etc.	E. & M., O. M.	996.00				996.00		
Crockett, Fort, Tex.:								
Extra work on buildings erected in fiscal year 1909.	B. & Q., S. C. D.	506.00				506.00	108,704.00	
1 field officer's quarters	do	9,900.00	c 704.00	c 446.50	c 490.00	11,540.50		Under construction.
4 double officers' quarters	do	51,760.00	c 5,576.00	c 3,854.00	c 3,808.00	64,998.00		Do.
1 ordnance repair shop	do	7,050.00	c 225.00			7,275.00		Do.
1 quartermaster's workshop	do	6,460.00				6,460.00		Do.
1 fire station	do	6,000.00	c 65.00			6,065.00		Do.
1 forage storehouse	do	4,740.00				4,740.00		Do.
1 oil house	do	3,740.00				3,740.00		Do.
1 coal shed	do	3,380.00				3,380.00		Do.

a Part of material for construction purchased from 1909 funds.
b Work done by purchase of material and hire of labor.
c Chargeable to the same appropriation as construction proper.
d Wiring only chargeable to same appropriation as construction proper.

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Statement showing buildings constructed or in course of construction in the United States from funds of fiscal year ended June 30, 1910, etc.—Continued.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910.
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies. Heating.	Regular supplies. Lighting.			
Crook, Fort, Nebr.:								
1 hay shed	B. & Q.	$1,981.00				$1,981.00	$1,981.00	Under construction.
Dade, Fort, Fla.:								
1 wagon shed	B. & Q., S. C. D.	3,100.00				3,100.00	27,822.00	Completed.
1 fire station	do	2,330.00	c $75.00		c $35.00	2,440.00		Do.
1 storehouse	do	1,282.00				1,282.00		Do.
1 guardhouse	do	14,218.00	c 1,959.00		c 490.00	16,667.00		Under construction.
1 storehouse (concrete)	do	3,318.00				3,318.00		Do.
1 oil house	do	1,015.00				1,015.00		Do.
D. A. Russell, Fort, Wyo.:								
2 post exchange buildings (built in 1909)	M. P. E.		c 3,138.00		c 1,500.00	4,638.00	333,692.91	Completed.
Alterations in root cellar	B. & Q.	2,000.00				2,000.00		Do.
Teamsters' quarters	do	16,502.00	2,660.02	$2,327.98	430.00	21,920.00		Do.
Completion of hospital	C. & R. of H.	b 19,765.93				19,765.93		
1 four-set officers' quarters	B. & Q.	22,684.00	2,750.00	1,682.00	1,130.00	28,246.00		Under construction.
Administration building	do	17,743.00	1,350.00	2,007.00	920.00	22,020.00		Do.
Guardhouse	do	17,575.00	1,925.00	1,723.00	560.00	21,783.00		Do.
Quartermaster's stable	do	17,597.00	650.00		260.00	18,507.00		Do.
Vehicle shed	do	10,629.00	150.00			10,779.00		Do.
Powder storehouse	do	634.00				634.00		Do.
Ammunition storehouse	do	1,069.00				1,069.00		Do.
Icehouse	do	6,664.00				6,664.00		Do.
2 band stands	do	1,878.00				1,878.00		Do.
2 field officers' quarters	do	25,168.00	2,340.00	2,200.00	1,642.00	31,350.00		Do.
1 four-set officers' quarters	do	22,684.00	2,750.00	1,682.00	1,130.00	28,246.00		Do.
Reinforced concrete butts and houses on target range.	S. G. & R.	20,125.00				20,125.00		Do.
Frame range office	do	933.00				933.00		Do.
Laundry building	R. S.	11,000.00	c 975.00		c 1,473.00	13,448.00		Do.
1 four-set civilian employees' quarters	B. & Q.	11,735.00	1,451.40	1,350.00	523.00	15,059.40		Do.
1 quartermaster's stable	do	17,400.00	693.70		252.00	18,345.70		Do.
2 stables (1 for engineers and 1 for mounted infantry officers).	do	28,000.00	1,302.90		478.00	29,780.90		Do.
1 stable guard and shop building	do	4,840.00			120.00	4,960.00		Do.
1 wagon shed	do	1,953.00				1,953.00		Do.
1 root cellar	do	8,987.00				8,987.00		Do.
Extra work on above buildings	do	452.18				452.18		
Do	M. P.	148.80				148.80		

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Davis, Fort, Alaska:								
Labor for construction of bachelor officers' quarters.	B. & Q.	[b] 3,000.00				3,000.00		Completed.
Labor for construction of addition to company officers' quarters.	do	[b] 300.00				300.00		Do.
Labor for construction of subsistence storehouse	do	[b] 1,200.00				1,200.00	17,065.00	Do.
Labor for construction of one set noncommissioned officers' quarters.	do	[b] 2,065.00				2,065.00		Do.
Storehouse	do	[b] 6,000.00				6,000.00		
Post exchange and gymnasium	M. P. E.	[b] 4,500.00				4,500.00		Do.
De Russy, Fort, Hawaii: Material for temporary frame barrack for engineer company.	B. & Q.	[b] 900.00				900.00	900.00	
Des Moines, Fort, Iowa:								
Dead house	C. & R. of H.	1,125.00	[c] 66.00			1,191.00		Do.
Post chapel	B. & Q.	9,412.62	70.00	1,396.00	902.00	11,780.62		Under construction.
1 quartermaster's stable	do	15,247.00	719.00		420.00	16,386.00		Do.
1 fire station	do	2,659.85	112.50		130.00	2,902.35	42,358.98	Do.
1 hay shed	do	3,890.56				3,890.56		Do.
1 coal shed	do	3,098.57				3,098.57		Do.
1 shop building	do	2,403.63				2,403.63		Do.
2 portable field kitchens	do	706.25				706.25		
Douglas, Fort, Utah:								
2 double barracks (erected in 1909)	W. & S.		13,726.00			13,726.00		Do.
1 band barrack (erected from 1909 funds)	do		1,689.00			1,689.00		Do.
1 double company officers' quarters	B. & Q.	14,419.00	1,379.00	1,296.00	544.00	17,638.00		Do.
1 quartermaster's storehouse	do	17,581.00			74.00	17,655.00	127,105.22	Do.
1 double barrack	M. P.	57,540.00	[c] 6,816.00	[c] 4,928.00	[c] 1,430.00	70,714.00		Do.
1 set quarters for hospital steward	Q. H. S.	4,747.00	[c] 497.00	237.00		5,481.00		Do.
Additional work on barracks	M. P.	202.22				202.22		
Dupont, Fort, Del.:								
2 company officers' quarters	B. & Q., S. C. D.	10,370.00	[c] 1,264.00	[c] 992.75	[c] 758.00	13,384.75		Do.
2 double noncommissioned officers' quarters	do	11,146.00	[c] 1,185.00	[c] 640.00	[c] 630.00	13,601.00	45,312.11	Do.
Bakery building	R. S.	5,463.00	445.00	318.00	225.00	6,451.00		Completed.
1 field officers' quarters	B. & Q., S. C. D.	10,000.00	[c] 826.14	[c] 577.22	[c] 472.00	11,875.36		Under construction.
Egbert, Fort, Alaska: Addition to quartermaster's storehouse (labor).	B. & Q.	[b] 1,680.00				1,680.00	1,680.00	
Getty, Fort, R. I.:								
Coal and wood shed	B. & Q., S. C. D.	[b] 450.00				450.00	750.00	
Coal and wood shed at Sanderstown Reservation	do	[b] 300.00				300.00		
Gibbon, Fort, Alaska:								
Shooting gallery	S. G. & R.	[b] 2,156.30				2,156.30		
Ice house	B. & Q.	[b] 1,300.00				1,300.00		
Fish cache	do	[b] 321.11				321.11		
Woodshed for signal corps	do	[b] 500.00				500.00	20,523.32	
Post exchange and gymnasium	M. P. E.	[b] 15,000.00				15,000.00		
Addition to bakery	R. S.	[b] 627.71				627.71		
Alterations in building No. 32 (signal corps barrack)	B. & Q.	618.20				618.20		
Governors Island, N. Y.:								
Addition to quarters No. 19	do	2,100.00	60.00	45.00	125.00	2,330.00	9,554.00	Completed.
Freight shed on wharf	do	7,224.00				7,224.00		Under construction.

[c] Chargeable to the same appropriation as construction proper.

[b] Work done by purchase of material and hire of labor.

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Statement showing buildings constructed or in course of construction in the United States from funds of fiscal year ended June 30, 1910, etc.—Continued.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910.
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies.				
				Heating.	Lighting.			
Hancock, Fort, N. J.:								
Work on new post exchange, and repairs to old building	M. P. E.	$4,010.00				$4,010.00		Completed.
1 double set noncommissioned officers' quarters	B. & Q., S. C. D.	5,533.00	c $695.00	c $400.00	c $364.00	6,992.00		Under construction.
1 double set firemen's quarters	do	4,770.00	c 626.00		c 353.00	5,749.00	$25,138.00	Do.
1 fire station	do	2,860.00			c 90.00	2,950.00		Do.
Second-story addition to storehouse	do	5,437.00				5,437.00		Do.
H. G. Wright, Fort, N. Y.:								
Moving engineer office building, etc	do	2,700.00				2,700.00		Completed.
2 double barracks (erected prior to this fiscal year)	do				c 900.00	900.00		Under construction.
2 field officers' quarters (erected prior to this fiscal year).	do				c 346.00	346.00		Do.
2 double noncommissioned officers' quarters (erected prior to this fiscal year).	do				c 225.00	225.00		Do.
2 double firemen's quarters (erected prior to this fiscal year).	do				c 206.00	206.00		Do.
2 double lieutenants' quarters (erected prior to this fiscal year).	do				c 573.00	573.00	70,867.16	Do.
1 guardhouse	do	15,444.00	c 1,609.30	c 1,406.95	c 463.32	18,923.57		Do.
2 double officers' quarters	do	24,651.00	c 2,534.60	c 2,432.00	c 1,415.14	31,032.74		Do.
1 coal shed	do	7,212.15				7,212.15		Do.
1 wagon shed	do	3,811.50				3,811.50		Do.
1 ordnance repair shop	do	3,368.00	c 319.20			3,687.20		Do.
1 band stand	do	1,250.00				1,250.00		Do.
Extra work on buildings erected prior to this fiscal year.	do	8,611.87				8,611.87		
Hot Springs, Ark. (general hospital):								
2 double sets officers' quarters	B. & Q.	24,870.00	3,500.00	2,400.00	1,999.88	32,769.88	33,987.68	Do.
Additional work on above buildings	do	317.80		900.00		1,217.80		Do.
Hunt, Fort, Va.:								
Moving and reconstructing bakery	B. & Q., S. C. D.	782.00				782.00	2,890.00	Completed.
Alterations and additions to 2 double officers' quarters.	do	2,108.00				2,108.00		Under construction.

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Jackson Barracks, La.:								
Addition to stable	do	[b] 219.60				219.60	1,173.10	
1 coal shed	do	[b] 953.50				953.50		
Jay, Fort, N. Y., shed for trucks, etc	B. & Q.	[b] 308.20				308.20	308.20	
Jefferson Barracks, Mo:								
Addition to hospital	C. & R. of H	3,270.00	[c] 411.00	80.00	[c] 210.00	3,971.00		Completed.
Isolation hospital	do	13,311.00	[c] 1,750.00	1,992.00	[c] 814.00	17,867.00		Under construction.
Laundry building	R. S	9,827.00	[c] 1,050.00		[c] 735.00	11,612.00		Do.
Alterations and repairs to recruit examination building.	B. & Q.	1,405.92	123.00			1,528.92		Completed.
Addition to band barracks	do	8,687.00	1,100.00	739.00	508.95	11,034.95	82,958.87	Under construction.
Elevator in new hospital	C. & R. of H	3,424.00				3,424.00		Do.
Addition and improvements in bakery	R. S	3,154.00	93.00		121.50	3,368.50		Do.
Converting 4 stable guardhouses into quarters for enlisted men.	B. & Q.	3,096.00	1,928.00		128.50	5,152.50		Do.
Mess hall and kitchen	M. P	[b] 25,000.00				25,000.00		Do.
Lawton, Fort, Wash.:								
Additional work on target range	S. G. & R.	4,859.47				4,859.47	4,998.47	Completed.
Material for construction of crematory	W. & S	139.00				139.00		
Leavenworth, Fort, Kans.:								
Band stand (erected prior to this fiscal year)					318.75	318.75		Completed.
Additional story on engineer barracks	M. P	57,621.50		[c] 3,992.00	[c] 2,047.00	63,660.50		Under construction.
Addition to hospital	C. & R. of H	13,739.00	[c] 826.00	883.00	[c] 209.00	15,657.00		Do.
Engineer school annex to Sheridan Hall	M. P	40,403.02	[c] 1,655.00	[c] 2,017.00	[c] 4,619.00	48,694.02		About completed.
Guardhouse	do	47,400.00	[c] 5,392.00	[c] 3,456.00	[c] 1,489.00	57,737.00	275,788.61	Under construction.
1 four-set noncommissioned officers' quarters	B. & Q.	10,994.00	1,346.00	638.00	598.00	13,576.00		Do.
Addition to fire-apparatus house	do	5,561.00	287.00		292.00	6,140.00		Do.
1 field officers' quarters	do	10,658.00	828.00	880.00	669.00	13,035.00		Do.
2 four-set officers' quarters	do	47,054.00	4,228.00	3,010.34	2,678.00	56,970.34		Do.
Leavenworth Military Prison, Kans.:								
Material for construction of scale house	do	[b] 250.00				250.00		Completed.
House for straw for convicts bedding	do	[b] 498.25				498.25		Do.
Machinery, materials, etc., for rebuilding prison	Military prison, Fort Leavenworth, Kans.	[b] 167,499.00				167,499.00	168,961.04	Under construction.
Completing wagon shed	B. & Q.	[b] 713.79				713.79		Completed.
Liscum, Fort, Alaska:								
Fire-apparatus house (labor)	do	[b] 522.00				522.00		
Paint shop	do	[b] 251.50				251.50	1,381.91	Do.
Addition to packers' quarters	do	[b] 608.41				608.41		
Logan H. Roots, Fort, Ark., addition to post bakery No. 65.	R. S	[b] 280.00				280.00	280.00	
Logan, Fort, Colo.:								
Remodeling stable into quartermaster's storehouse	B. & Q.	[b] 2,635.60				2,635.60		Under construction.
Isolation hospital	C. & R. of H	13,400.00	[c] 1,986.00	2,323.00	[c] 440.00	18,149.00	32,919.87	Do.
Laundry building	R. S	8,721.27	[c] 978.00		[c] 1,200.00	10,899.27		
Ice house	B. & Q.	1,236.00				1,236.00		Completed.

[b] Work done by purchase of material and hire of labor.
[c] Chargeable to the same appropriation as construction proper.
[d] Wiring only chargeable to same appropriation as construction proper.

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Statement showing buildings constructed or in course of construction in the United States from funds of fiscal year ended June 30, 1910, etc.—Continued.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910.
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies.				
				Heating.	Lighting.			
McDowell, Fort, recruit depot, Cal.:								
Temporary buildings for military convicts	B. & Q.	[b] $4,500.00				$4,500.00		
Labor and additional materials for construction of post exchange and gymnasium	M. P. E.	[b] 1,841.00				1,841.00		
Rock crushers, engine, etc., for construction of buildings	B. & Q.	4,281.80				4,281.80		
Commencing construction of barracks	M. P.	[b] 70,000.00				70,000.00	$172,338.60	
Hoisting engine, iron, etc., for buildings	B. & Q.	1,629.00				1,629.00		
Material for construction of 3 field officers' quarters, 12 line officers' quarters, 1 guardhouse, and 1 administration building	do.	73,850.00	$9,020.67	$3,526.44	$2,720.69	89,117.80		
Quartermaster's storehouse (rough construction)	do.	550.00				550.00		
Addition to wharf house	do.	419.00				419.00		
Mackenzie, Fort, Wyo.:								
1 quartermaster's stable	do.	7,632.00	288.00			7,920.00	12,634.00	Under construction.
1 root house	do.	4,579.00			135.00	4,714.00		Completed.
McKinley, Fort, Me.:								
Extra work on buildings erected prior to this fiscal year	B. & Q., S. C. D.	1,491.91				1,491.91		
1 quartermaster's storehouse	do.	17,939.00			[c] 93.00	18,032.00		Under construction.
2 double noncommissioned officers' quarters	do.	13,300.00	[c] 1,380.00	[c] 948.00	[c] 660.00	16,288.00	53,229.41	Do.
Addition to guardhouse	do.	4,500.00				4,500.00		Do.
Addition to post hospital	C. & R. of H.	9,389.00	[c] 827.00	2,450.00	[c] 251.50	12,917.50		Do.
McPherson, Fort, Ga.: 1 quartermaster's stable	B. & Q.	15,352.58	680.00		150.00	16,182.58	16,182.58	Completed.
McRee, Fort, Fla.: Mess hall and kitchen	B. & Q., S. C. D.	2,500.00	[c] 1,050.00			3,550.00	3,550.00	Do.
Madison Barracks, N. Y.:								
Bakery building	R. S.	6,200.00	300.00	572.65	210.00	7,282.65	32,157.65	Under construction
Quartermaster's stable	B. & Q.	24,175.00	450.00		250.00	24,875.00		Do.
Mason, Fort, Cal.:								
Expenses incidental to construction of supply depot	Special	10,777.63				10,777.63		
2 storehouses	do.	137,520.00	[c] 3,530.00		[c] 1,470.00	142,520.00	155,297.63	Do.
Temporary stable for department headquarters	B. & Q.	1,859.00	141.00			2,000.00		Completed.
Meade, Fort, S. Dak.:								
4 cavalry stables	do.	69,963.00	2,512.00		1,400.00	73,875.00	98,733.75	Under construction.
2 company officers' quarters	do.	19,608.75	1,848.00	1,690.00	1,712.00	24,858.75		Do.

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Miley, Fort, Cal.:								
Addition to post exchange	M. P. E.	b 265.40				265.40	3,704.04	Completed.
2 lavatory buildings	B. & Q., S. C. D.	c 1,582.64				1,582.64		
Tool shed	do	821.00				821.00		
Addition to post stables	do	b 735.00				735.00		
Frame kitchen	B. & Q.	b 300.00				300.00		
Missoula, Fort, Mont.:								
1 double barrack	M. P.	56,600.00	c 6,450.00	c 5,222.00	c 1,245.00	b 69,517.00	115,351.00	Do.
1 quartermaster's stable	B. & Q.	18,042.00	1,050.00		245.00	19,337.00		Under construction.
2 double noncommissioned officers' quarters	do	11,543.00	1,750.00	980.00	690.00	14,963.00		Do.
1 wagon shed	do	3,104.00				3,104.00		Do.
1 bakery building	R. S.	7,150.00	630.00	325.00	325.00	8,430.00		Do.
Monroe, Fort, Va.:								
2 four-sets officers' quarters	B. & Q., S. C. D.	42,386.90	c 3,744.00	c 3,194.00	c 1,888.00	51,212.90	145,147.90	Completed.
Picket guardhouse	do	2,497.00	c 320.00	c 300.00	c 90.00	3,207.00		Do.
Waterproofing shower stalls	do	1,332.00				1,332.00		Do.
Detachment barrack at Fort Wool, Va.	do	5,669.00	c 980.00		c 120.55	6,769.55		Under construction.
9 double sets noncommissioned officers' quarters	do	47,710.00	c 5,063.40	c 3,142.80	c 2,137.50	58,053.70		Do.
Enlarging officers' quarters, 1, 3, and 50	do	23,500.00				23,500.00		
Extra work on field officers' quarters	do	1,072.75				1,072.75		
Morgan, Fort, Ala.:								
Hospital storehouse	C. & R. H.	484.00				484.00	26,801.00	Completed.
2 double sets noncommissioned officers' quarters	B. & Q., S. C. D.	7,726.00	c 1,200.00			8,926.00		
Do	do	11,300.00	c 1,496.00	c 1,100.00	c 580.00	14,476.00		
Extension to ordnance repair shop	do	880.00				880.00		
2 cypress cisterns	do	550.00				550.00		
Moving and resetting building No. 48	do	935.00				935.00		
Raising building No. 49	do	550.00				550.00		
Moultrie, Fort, S. C.:								
Ordnance repair shop	do	4,075.00	c 532.00		c 115.00	4,722.00	16,624.00	Under construction.
Artillery engineer's office and storeroom	do	5,784.00	c 637.00			6,421.00		
Quartermaster's storehouse	do	5,481.00				5,481.00		
Myer, Fort, Va.:								
House for subtarget rifle	B. & Q.	a 100.00				100.00	15,265.00	Do.
Addition to administration building	do	13,665.00	165.00	1,335.00		15,165.00		
Myer, Fort, Signal Corps Depot, Va.:								
1 quartermaster's stable	do	b 15,000.00	1,125.00		525.00	16,650.00	35,645.00	
1 quartermaster's storehouse	do	b 6,000.00	450.00		210.00	6,660.00		
Temporary stable for Army War College detachment.	do	b 485.00				485.00		
Stable guard and shop building	do	b 1,700.00				1,700.00		
Additional for construction of above buildings	do	b 10,150.00				10,150.00		
Niagara, Fort, N. Y.: 2 double sets officers' quarters	do	24,487.00	2,500.00	2,237.00	800.00	30,024.00	30,024.00	Do.
Oglethorpe, Fort, Ga.:								
Quartermaster's storehouse for maneuvers	E. & M., O. M.	3,143.00				3,143.00	6,764.00	Completed.
Enlarging subsistence storehouse	B. & Q.	1,746.00				1,746.00		Do.
Construction of pavilion	M. P. E.	1,875.00				1,875.00		Under construction.

b Work done by purchase of material and hire of labor.
c Chargeable to the same appropriation as construction proper.
d Wiring only chargeable to same appropriation as construction proper.

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Statement showing buildings constructed or in course of construction in the United States from funds of fiscal year ended June 30, 1910, etc.—Continued.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910.
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies.				
				Heating.	Lighting.			
Omaha, Fort, Nebr.:								
Addition to post hospital	C. & R. of H	$7,225.00	c $697.00	$540.00	c $184.53	$8,646.53	$35,419.53	Completed.
1 stable for 106 animals	B. & Q	15,500.00	1,111.00		327.00	16,938.00		Under construction.
Combined hay shed and granary	do	5,470.00				5,470.00		Do.
Oil house	do	780.00				780.00		Do.
Addition to gashouse	do	1,961.00		1,624.00		3,585.00		Do.
Philadelphia Depot, Pa.:								
Elevators in new storehouse	M. P	7,534.00				7,534.00	34,070.53	Completed.
2 steel chutes in new storehouse	do	3,954.00				3,954.00		Do.
Additional story on building No. 5-A	B. & Q	19,937.00		b 1,248.00		21,185.00		Do.
Extra work on new storehouse	M. P	1,397.53				1,397.53		Do.
Pickens, Fort, Fla.:								
Extension to ordnance repair shop	B. & Q., S. C. D	1,643.33	c 250.00			1,893.33	8,382.59	Do.
1 double set civilian employees' quarters	do	5,362.00	c 800.00		c 327.26	6,489.26		Under construction.
Plattsburg Barracks, N. Y.:								
1 double set noncommissioned officers' quarters	B. & Q	5,821.00	518.00	328.00	480.00	7,147.00	35,999.00	Do.
1 four-set officers' quarters	do	23,917.00	2,195.00	1,625.00	1,115.00	28,852.00		Do.
Porter, Fort, N. Y.: Addition to guardhouse	do	6,400.00	1,400.00	960.00	200.00	8,960.00	8,960.00	Do.
Preble, Fort, Me.:								
Cable storehouse	B. & Q., S. C. D	4,200.00				4,200.00	7,735.00	Do.
Ordnance repair shop	do	3,337.00	c 198.00			3,535.00		Do.
Presidio of Monterey, Cal.: Assembly hall	M. P. E	12,950.00	c 456.00	c 1,240.00	c 471.00	15,117.00	15,117.00	Do.
Presidio of San Francisco, Cal.:								
Lavatory for hospital corps	B. & Q	b 859.64	739.00			1,598.64	101,329.54	Do.
1 field officers' quarters	do	11,480.00	971.00	572.00	461.20	13,484.20		Do.
5 double company officers' quarters	do	61,000.00	6,605.00	4,465.00	3,281.50	75,351.50		Do.
Storehouse	do	6,850.00			85.00	6,935.00		Do.
Root house	do	2,550.00				2,550.00		Do.
Addition to guardhouse (cantonment)	do	b 337.20	206.00			543.20		Completed.
Moving kitchens and converting same into barrack	do	322.00	545.00			867.00		Do.
Reno, Fort, Okla.:								
Addition to veterinary hospital	do	b 3,500.00				3,500.00	18,029.00	Do.
9 sheds for protection of animals	do	b 7,400.00				7,400.00		
3 sheds for shelter in pasture	do	b 3,600.00				3,600.00		
Veterinary hospital and 2 hay sheds (labor for)	do	b 3,529.00				3,529.00		

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Revere, Fort, Mass.:								
Fire-apparatus house	B. & Q., S. C. D	[b] 700.00				700.00	700.00	
Riley, Fort, Kans.:								
1 four-set officers' quarters	B. & Q	24,700.00	2,802.00	1,752.00	1,127.25	30,381.25		Under construction.
Civilian teamsters' quarters	do	17,150.00	2,188.00	1,961.00	471.00	21,770.00		Do.
1 four-set civilian employees' quarters	do	9,900.00	862.00	825.00	394.00	11,981.00		Do.
Storage shed for maneuver property	do	3,182.00				3,182.00		Completed.
Additions to artillery barracks 89, 91, and 93	do	23,802.00	8,740.00	1,740.50	687.00	34,069.50	139,309.26	Under construction.
1 artillery stable	do	13,587.00			235.00	13,822.00		Do.
Quarters for pack-train employees	do	14,200.00	2,535.00	2,050.00		18,785.00		Do.
Extra work in connection with above buildings	do	4,418.51				4,418.51		
Robinson, Fort, Nebr.:								
Fire station	do	3,767.00	100.00		112.00	3,979.00	9,841.00	Completed.
1 set quarters for hospital steward	Q. H. S	4,890.00	[c] 445.00	335.00	[c] 192.00	5,862.00		Under construction.
Rosecrans, Fort, Cal.:								
1 set quarters for civil engineer and superintendent of construction.	B. & Q., S. C. D	1,000.00	[c] 150.00		[c] 50.00	1,200.00	3,791.94	Do.
1 double noncommissioned officers' quarters for engineer employees.	do	2,591.94				2,591.94		Completed; work done by engineer department.
Ruger, Fort, Hawaii:								
Temporary bakery	Special	[b] 614.00				614.00		Completed.
1 set noncommissioned officers' quarters (temporary).	do	[b] 300.00				300.00		Do.
2 sets noncommissioned officers' quarters (temporary).	do	[b] 600.00				600.00	10,813.98	Do.
1 set quarters for hospital steward	Q. H. S	[c] 300.00				300.00		Do.
Buildings, etc., for temporary camp	Special	8,999.98				8,999.98		Do.
St. Louis depot, Mo.: Addition to stable No. 20	B. & Q	1,532.00	112.00			1,644.00	1,644.00	Do.
St. Michael, Fort, Alaska:								
Lumber storehouse (labor)	do	[b] 200.00				200.00		
Gymnasium and bowling alley (labor)	M. P. E	[c] 4,900.00				4,900.00		Do.
Gasoline storehouse	B. & Q	[b] 200.00				200.00	9,158.14	Do.
House for dog musher	do	[b] 709.58				709.58		Do.
Laundry building and equipment	R. S	[c] 3,148.56				3,148.56		Under construction.
Sam Houston, Fort, Tex.:								
Addition to hospital	C. & R. of H			4,960.76	490.00	5,450.76		Completed.
1 ordnance storehouse	B. & Q	3,400.00				3,400.00		Do.
Aeroplane shed	do	1,450.00				1,450.00		Do.
1 double set hospital stewards' quarters	Q. H. S	6,462.00	[c] 755.00		[b] 460.00	7,677.00		Under construction.
Laundry building	R. S	12,730.00	[c] 988.00		839.00	14,557.00		Do.
1 four-set officers' quarters	B. & Q	24,563.00	2,474.57	1,492.83	2,715.03	31,245.43		Do.
Do	do	27,293.00	2,474.57	1,492.83	2,715.03	33,975.43	196,138.05	Do.
1 field officers' quarters	do	13,000.00	1,026.26	910.83	1,061.18	15,998.27		Do.
1 guardhouse	do	18,676.00	1,665.49	1,402.62	636.32	22,380.43		Do.
1 administration building	do	9,420.00	464.63	775.03	778.91	11,438.57		Do.
3 single stable, guard, and shop buildings	do	10,938.00			512.16	11,450.16		Do.
3 artillery stables	do	35,365.00				35,365.00		Do.
Temporary gun shed	do	1,750.00				1,750.00		Do.

[b] Work done by purchase of material and hire of labor.

[c] Chargeable to the same appropriation as construction proper.

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Statement showing buildings constructed or in course of construction in the United States from funds of fiscal year ended June 30, 1910, etc.—Continued.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910.
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies.				
				Heating.	Lighting.			
Schofield barracks, Hawaii:								
Oil house	B. & Q	[b] $428.22				$428.22	$27,248.22	Completed.
Blacksmith shops	do	[b] 770.00				770.00		Do.
Veterinary hospital	do	[b] 400.00				400.00		Do.
Annex to commissary storehouse	do	[b] 500.00				500.00		Do.
Temporary bakery	R. S	[b] 550.00				550.00		Do.
Amusement hall and annex to post exchange	M. P. E	[b] 1,600.00				1,600.00		Do.
Temporary barracks and repairs to officers' quarters.	B. & Q	[b] 20,000.00				20,000.00		Do.
Frame hospital structures	do	[b] 3,000.00				3,000.00		Do.
Screven, Fort, Ga.:								
Buildings erected from 1909 funds	B. & Q., S. C. D		[c] $6,527.00			6,527.00	24,682.00	Do.
Ordnance workshop	do	3,332.00	[c] 73.00			3,405.00		Under construction.
Quartermaster's storehouse	do	12,975.00			[c] $100.00	13,075.00		Do.
Enlarging building No. 14	do	1,225.00				1,225.00		Do.
Enlarging bakery building No. 11	R. S	450.00				450.00		
Shafter, Fort, Hawaii:								
Ordnance storehouse	B. & Q	4,350.00				4,350.00	11,470.00	Do.
Buildings erected from 1909 funds					7,120.00	7,120.00		Do.
Sheridan, Fort, Ill.:								
Quartermaster's stable (erected from 1909 funds)					204.00	204.00	40,683.00	Completed.
Quartermaster's stable	B. & Q	16,500.00	700.00		295.00	17,495.00		Do.
1 double set noncommissioned officers' quarters for hospital steward.	Q. H. S	5,394.00	[c] 1,056.00	$698.00	[c] 438.00	7,586.00		Do.
Addition to wagon shed	B. & Q	6,000.00				6,000.00		Do.
Blacksmith shop	do	2,948.00				2,948.00		Do.
Crematory building, including machinery	W. & S	6,450.00				6,450.00		Under construction.
Sill, Fort, Okla.:								
5 double sets officers' quarters	B. & Q	65,850.00	5,342.25	4,300.00	1,628.58	77,120.83		Do.
1 field officers' quarters	do	11,800.00	962.00	780.00	320.00	13,862.00		Do.
1 field officers' quarters	do	12,300.00	937.37	700.00	230.00	14,167.37		Do.
1 four-set officers' quarters	do	20,830.00	2,522.57	1,150.00	590.00	25,092.57		Do.
4 field artillery barracks	M. P	108,000.00	[c] 11,452.28	[c] 10,400.00	[c] 2,053.33	131,905.61		Do.
2 storehouses	B. & Q	12,700.00		1,060.00	150.00	13,910.00		Do.
1 bakery	R. S	5,325.00	481.53	380.00	260.00	6,446.53		Do.

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3 double stable guard and shops	B. & Q.	13,050.00			300.00	13,350.00	525,024.68	Do.
6 gun sheds	do.	68,100.00	407.70			68,507.70		Do.
2 hay sheds	do.	8,400.00				8,400.00		Do.
1 granary	do.	10,650.00				10,650.00		Do.
1 coal shed	do.	2,550.00				2,550.00		Do.
1 wagon shed	do.	2,850.00				2,850.00		Do.
1 power house and stack	do.	23,950.00				23,950.00		Do.
Office building for constructing quartermaster	do.	[b] 175.00				175.00		
1 guardhouse	M. P.	20,550.00	[c] 2,455.00	[c] 1,657.00	[c] 550.00	25,212.00		Do.
Workshops	B. & Q.	4,548.00		500.00		5,048.00		Do.
Quartermaster's storehouse	do.	6,985.00		898.00	82.00	7,965.00		Do.
1 stable guard and shop building	do.	2,654.00			97.00	2,751.00		Do.
Building at polo ground	M. P. E.	800.00				800.00		Do.
1 double set officers' quarters	B. & Q.	14,000.00	1,464.00		350.00	15,814.00		Do.
2 field officers' quarters	do.	26,000.00	2,014.00		550.00	28,564.00		Do.
1 four-set officers' quarters	do.	22,000.00	2,421.00		650.00	25,071.00		Do.
Extra work in connection with new buildings	do.	862.07				862.07		Do.
Slocum, Fort, N. Y.:								
Addition to guardhouse	do.	10,595.00	1,139.00	697.00	279.00	12,710.00	14,510.00	Completed.
Cold-storage addition to general mess building	do.	[b] 1,800.00				1,800.00		
Snelling, Fort, Minn.:								
Addition to hospital	C. & R. of H.	10,171.00	[c] 678.00	1,795.00	[d] 457.00	13,101.00	78,475.00	Do.
1 four-set officers' quarters	B. & Q.	18,000.00	2,310.00	1,585.00	960.00	22,855.00		Do.
Addition to artillery stable	do.	2,575.00	108.00		16.00	2,699.00		Do.
Quartermaster stable	do.	14,890.00	780.00		150.00	15,820.00		Do.
1 four-set officers' quarters	do.	19,200.00	2,300.00	1,498.00	1,002.00	24,000.00		Under construction.
Sparta, Wis.: 100 temporary kitchens	do.	4,140.00				4,140.00	4,140.00	Completed.
Stevens, Fort, Oreg.:								
1 quartermaster storehouse	B. & Q., S. C. D.	16,598.00			[c] 225.00	16,823.00	38,050.00	Under construction.
1 guardhouse	do.	18,027.00	[c] 800.00	[c] 1,250.00	[c] 350.00	20,427.00		Do.
Moving and restoring 2 buildings, Nos. 26 and 30	do.	800.00				800.00		
Strong, Fort, Mass.:								
1 double set officers' quarters	do.	13,023.00	[c] 1,247.00	[c] 1,067.00	[c] 685.00	16,022.00	49,851.12	Do.
1 double noncommissioned officers' quarters	do.	5,263.00	[c] 727.00	[c] 460.00	[c] 308.00	6,758.00		Do.
1 quartermaster storehouse	do.	14,304.00			[c] 106.00	14,410.00		Do.
Coal pocket on extension wharf	do.	3,424.52				3,424.52		Do.
Extension to guardhouse	do.	6,172.00	[c] 735.00	[c] 977.00	[c] 107.00	7,991.00		Do.
2 field kitchens and mess shelter	E. & M., O. M.	940.00				940.00		Completed.
Extra work on above buildings	B. & Q., S. C. D.	305.60				305.60		
Terry, Fort, N. Y.:								
Garbage crematory	W. & S.	3,750.00				3,750.00	51,002.75	Do.
Addition to hospital	C. & R. of H.	4,875.00		1,108.00		5,983.00		Do.
Cow shed for hospital	do.	492.86	[c] 35.19			528.05		Do.
1 guardhouse	B. & Q., S. C. D.	17,696.00	[c] 1,580.00	[c] 1,520.00	[c] 495.00	21,291.00		Under construction.
1 quartermaster storehouse	do.	15,030.00			[c] 830.00	15,860.00		Do.
Extra work on buildings erected from 1909 funds	do.	3,590.70				3,590.70		
Thomas, Fort, Ky.:								
1 set quarters for hospital steward	Q. H. S.	4,577.00	[c] 298.00	105.00	[d] 124.00	5,104.00	6,438.00	Completed.
Garbage crematory building	W. & S.	1,334.00				1,334.00		Do.

[b] Work done by purchase of material and hire of labor.
[c] Chargeable to the same appropriation as construction proper.
[d] Wiring only chargeable to same appropriation as construction proper.

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Statement showing buildings constructed or in course of construction in the United States from funds of fiscal year ended June 30, 1910, etc.—Continued.

Posts and buildings.	Division of cost.					Total cost for each building.	Total for each post.	Status on Aug. 1, 1910
	Building.		Fixtures.					
	Appropriation.	Cost.	Water and sewers, plumbing.	Regular supplies. Heating.	Regular supplies. Lighting.			
Totten, Fort, N. Y.:								
2 double sets noncommissioned officers' quarters	B. & Q., S. C. D	$10,797.00	c $1,198.00	c $624.00	c $616.00	$13,235.00	$16,169.00	Completed.
Extension to ordnance repair shop	do	1,571.00	c 239.00			1,810.00		Do.
Remodeling building No. 90 into quartermaster's office.	do	1,124.00				1,124.00		
Vancouver Barracks, Wash.:								
Artillery stable for 138 animals	B. & Q	19,855.00	800.00		400.00	21,055.00	27,244.00	Under construction.
Frame storehouse 240 feet long	do	6,189.00				6,189.00		Do.
Wadsworth, Fort, N. Y.:								
Remodeling, etc., of King House	B. & Q., S. C. D	3,131.00	c 1,646.00	c 300.00		5,077.00	10,188.40	Completed.
Garbage crematory plant	W. & S	3,750.00				3,750.00		Do.
Extension to ordnance repair shop	B. & Q., S. C. D	1,194.00	c 167.40			1,361.40		Do.
Washington Barracks, D. C.:								
Addition to engineer stable	B. & Q	1,700.00				1,700.00	16,319.00	Do.
Coal shed, etc	do	b 1,583.00				1,583.00		
Addition to guardhouse	do	4,943.00		110.00	99.00	5,152.00		Under construction.
Pontoon shed	do	7,884.00				7,884.00		Do.
Washington, Fort, Md.:								
Building at pumping plant for engineer quarters	B. & Q., S. C. D	b 400.00				400.00	51,019.00	
2 field officers' quarters	do	20,110.00	c 1,883.00	c 1,407.00	c 600.00	24,000.00		Do.
1 double set noncommissioned officers' quarters	do	5,699.00	c 633.00	c 400.00	c 400.00	7,132.00		Do.
1 bakery building	R. S	7,465.00	a 509.00	358.00	300.00	8,632.00		Do.
1 quartermaster's workshop	B. & Q., S. C. D	4,488.00				4,488.00		Do.
1 coal shed	do	5,227.00				5,227.00		Do.
Extension to ordnance repair shop	do	1,140.00				1,140.00		Do.
Wayne, Fort, Mich.:								
1 four-set officers' quarters	B. & Q	21,225.65	2,360.00	1,440.00	1,222.00	26,247.65	26,247.65	Completed.
West Point, N. Y.:								
Garbage crematory building	W. & S	5,600.00				5,600.00	6,403.00	Under construction.
Temporary construction for athletic exercises	B. & Q	b 500.00				500.00		Completed.
Addition, etc., to bakery	R. S	303.00				303.00		
Whipple Barracks, Ariz.:								
Root cellar	B. & Q	850.00				850.00	15,340.00	Do.
Quartermaster storehouse	do	7,500.00				7,500.00		Under construction.
Quartermaster stable	do	6,990.00				6,990.00		Do.

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W. H. Seward, Fort, Alaska: Shooting gallery and bowling alley (material).	M. P. E.	6,495.00				6,495.00	6,495.00	Do.
Williams, Fort, Me.:								
Addition to hospital (built from 1909 funds)	C. & R. of H.			762.00		762.00	132,898.50	
Guardhouse	B. & Q., S. C. D.	17,417.00	c 1,648.00	c 1,265.50	c 423.00	20,753.50		Do.
1 quartermaster storehouse	do	13,491.00			97.00	13,588.00		Do.
1 post bakery building	R. S.	6,300.00	488.00	417.00	191.00	7,396.00		Do.
2 double captains' quarters	B. & Q., S. C. D.	23,284.00	c 2,654.00	c 2,120.00	c 1,200.00	29,258.00		Do.
1 double set lieutenants' quarters	do	12,340.00	c 1,372.00	c 1,060.00	c 599.00	15,371.00		Do.
2 field officers' quarters	do	19,128.00	c 1,763.00	c 1,300.00	c 877.00	23,068.00		Do.
1 administration building	do	19,841.00	c 822.00	c 1,299.00	c 740.00	22,702.00		Do.
Winfield Scott, Fort, Cal.:								
1 coast artillery barrack	do	33,360.78	c 3,056.00	c 3,033.00	c 415.00	39,864.78	150,466.14	Completed.
2 company officers' quarters	do	12,642.00	c 1,238.00	c 950.00	c 437.00	15,267.00		Do.
2 single coast artillery barracks	do	63,300.00	c 5,360.00	c 5,200.00	c 950.00	74,810.00		Under construction.
Post exchange and assembly hall	M. P. E.	16,900.00	c 908.00	c 1,616.00	c 1,100.36	20,524.36		Do.
Wingate, Fort, N. Mex.:								
Accommodations for Indian scouts	B. & Q.	b 385.75				385.75	1,352.75	Completed.
Post exchange (erected from 1909 funds)	M. P. E.				c 967.00	967.00		
Wood, Fort, N. Y.: Cable storehouse	B. & Q.	4,606.00			100.00	4,706.00	4,706.00	Do.
Worden, Fort, Wash.:								
Oil house	B. & Q., S. C. D.	620.00				620.00	54,207.00	Do.
Cable storehouse	do	3,333.00				3,333.00		Do.
Addition to hospital	C. & R. of H.	18,235.00	c 1,000.00	4,675.00	d 620.00	24,530.00		Do.
Ordnance storehouse	B. & Q., S. C. D.	b 1,140.00				1,140.00		
Coal shed	do	4,340.00				4,340.00		Do.
Stable	do	7,522.00				7,522.00		Do.
Wagon shed and teamsters' quarters	do	7,210.00				7,210.00		Under construction.
Converting wagon shed into storehouse	do	869.00				869.00		Do.
Converting coal house into ordnance shop	do	2,181.00				2,181.00		Do.
Converting stable into storehouse	do	2,462.00				2,462.00		Do.
Yellowstone, Fort, Wyo.:								
Lofts over two cavalry stables	B. & Q.	b 1,642.00				1,642.00	82,947.66	Completed.
Root cellar	do	b 2,500.00				2,500.00		
Hospital building	C. & R. of H.	39,221.86	c 3,810.00	3,800.00	d 1,727.00	48,558.86		Under construction.
Guardhouse	B. & Q.	16,500.00	1,800.00	1,500.00	365.00	20,165.00		Do.
Soldiers' quarters at outposts	do	7,946.20	717.60			8,663.80		Do.
Barn and outhouses for same	do	1,418.00				1,418.00		Do.
Miscellaneous posts:								
Purchase of jacks for concrete construction work at various posts.	do	7,131.25				7,131.25	9,762.50	
Do	M. P.	2,631.25				2,631.25		
Total		4,571,003.73	317,140.74	219,173.03	137,092.82	5,244,410.32	5,244,410.32	

b Work done by purchase of material and hire of labor.
c Chargeable to same appropriation as construction proper.
d Wiring only chargeable to same appropriation as construction proper.

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WATER SUPPLY AND DISTRIBUTING SYSTEMS; SEWAGE AND SEWAGE DISPOSAL AND PURIFICATION PLANTS.

Water-supply systems.—At many posts it has been found necessary in recent years to increase the water supply, (1) on account of enlarging the garrison, (2) on account of the installation of modern plumbing and the more liberal use of water for sprinkling and irrigating purposes, and (3) on account of the failure of the sources from which they were formerly supplied. Large increases in the supply have been made or are now under way at a number of posts.

It is the policy of this office, in making these improvements, to install good machinery and to have all work done according to the best current practice.

Water and sewage purification plants.—Throughout the country there has been much discussion and investigation of the best methods of purifying water and of treating sewage, which have become necessary on account of the settling up of the country and the increase of population of the towns and municipalities. This office has endeavored with all the means at hand to keep pace with the demand for better water supplies and a more intelligent disposal of sewage and other waste.

The improvement of the water supply at the various posts, where necessary, depends upon the local conditions and the method adopted in each case has been the one offering the best results with the minimum outlay.

A large amount of work is yet required in order that the various posts may be supplied with an adequate amount of pure water. During the current fiscal year this work will be continued and as much accomplished as practicable with the funds available. Important work that can not be accomplished during the current fiscal year will be included in the estimates for the fiscal year 1912.

Sewerage systems.—At a large number of posts, extensions, enlargements, and improvements to the sewerage systems have been necessary on account of new construction of buildings. No complete disposal plants have been constructed during the year, although at Fort Sill, Okla., a hydrolitic tank has been put under contract and, if found necessary, sprinkling filter beds will be added later.

The steps being taken by States, cities, and other municipalities for the disposal of sewage in such manner as to avoid the pollution of streams or bodies of water upon which other communities are dependent for their water supply makes it necessary that sewage-purification plants be installed at a number of posts, as at Fort Sheridan, Ill., Fort McPherson, Ga., and others.

Elaborate experiments have been made by various cities, both in this country and in Europe, in order to develop the best method of constructing the so-called "biological" disposal plants. A board of officers, consisting of two medical officers and one quartermaster, has made inspection of such work at Chicago, Ill., Columbus, Ohio, and Baltimore, Md.

It is expected during the current fiscal year to put under contract a plant of the most modern design at Fort Logan, Colo.

Cost of new sewerage installation and extensions during the year	$139,698.93
Repairs to sewerage systems	10,842.42
Total	150,541.35

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ICE MANUFACTURING AND REFRIGERATING PLANTS.

Ice manufacturing and refrigerating plants, with improvements thereto, have been authorized during the fiscal year at Fort Bayard, N. Mex., Fort Sam Houston, Tex., Fort Bliss, Tex., Fort Screven, Ga., Fort Oglethorpe, Ga., and Whipple Barracks, Ariz.

Cost of ice-plant installation and improvements during the year	$65,903.02
Cost of repairs and supplies	1,629.00
Total	67,532.02

FIRE-EXTINGUISHING APPARATUS.

Fire-extinguishing apparatus and supplies were furnished to nearly all the posts and subposts throughout the United States, as called for by a schedule of supplies furnished by the various chief quartermasters. They were purchased under a general advertisement and supplied by the depot quartermaster at Washington, D. C.

Total expenditure for fire-extinguishing apparatus during the year	$109,706.79
Repairs to same	6,234.17
Total	115,940.96

ROADS, WALKS, WHARVES, DRAINS, AND SEA WALLS, ETC.

Roads and walks.—Authority was given for the construction and improvement of roads and walks at a number of posts. A large amount of work authorized under the 1910 appropriation is still in progress.

The amounts expended are:

Roads:	
Construction	$397,450,17
Repair of	73,677.89
Walks:	
Construction of	76,257.13
Repair of	17,898.93
Total	570,284.12

Railroads and railroad equipment.—The construction of railroads proper on government reservations is chargeable to the appropriation "Roads, walks, wharves, and drainage."

The work of constructing the railroad terminal system at Fort Leavenworth, Kans., begun in May, 1907, was continued and is still in progress. In addition, a railroad was constructed on the Fort Sill Military Reservation at a cost of $20,248.

The cars, locomotives, etc., for the railroad are charged to the appropriation "Army transportation." During the year new equipment was authorized and repairs made to the present equipment at a cost of $5,735.

Wharves.—Three new wharves were constructed during the fiscal year at Fort Standish, Mass., Fort Terry, N. Y., and Fort Taylor, Fla. (Constructed by the Engineer Department and the Quartermaster's Department jointly.)

In addition to the above, extensions, improvements, or repairs to wharves were made at a number of posts, the amounts expended being:

For construction, or extensions	$60,206.41
For repairs	27,936.13
Total	88,142.54

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Grading, drainage, and sea walls.—Authority was given during the fiscal year for grading, draining, and filling lands, and for the construction of sea walls at a number of posts, at a total cost of $175,244.00.

Dredging.—During the fiscal year authority was given for dredging, at a cost of $49,053.14.

Inland harbors.—An inland harbor is being constructed at Fort Terry, N. Y., at a cost of $45,200.

Care of grounds.—For the care, preservation, and adornment of military posts and reservations, the sum of $35,813.97 was authorized. There was expended at the Presidio of San Francisco, Cal., during the year, for the same purposes, $7,500, the funds being appropriated in the sundry civil bill.

Fences.—To protect grazing lands, buildings, and grounds at military posts and reservations, the sum of $23,901.31 was authorized for the construction of fences and repairs to existing ones. This amount is chargeable to the appropriation for "Regular supplies."

Purchase of land.—An aggregate sum of $329,025.85 was expended for purchase of land at various posts and the expenses incident thereto. Among the more important items under this head are the following:

D. A. Russell, Fort., Wyo: For 1,336.78 acres, including recording fees, etc., from special appropriation of $18,000 for the purpose	$14,548.65
Douglas, Fort, Utah: For land of Miss Hilda Fosness, about 360 acres, for addition to the reservation near the target range	3,600.00
H. G. Wright, Fort, N. Y.: For 6.61 acres for addition to the reservation, from appropriation "Barracks and quarters, seacoast defense"	3,025.00
Cost of recording release of dower, same appropriation	3.54
Leavenworth, Fort, Kans.: For about 320 acres for addition to the target range on the reservation	41,000.00
Mason, Fort, Cal.: For parcels A and B, Hastings estate, submerged lands, for wharves, etc., from appropriation "Army supply depot, Fort Mason, Cal."	10,842.45
Oglethorpe, Fort, Ga.: For 751.412 acres, condemned for addition to the Catoosa target range reservation	14,815.67
For land of the Chattanooga Railway and Light Company, for addition to the post reservation, for sanitary reasons	1,479.87
Portsmouth Harbor, N. H.: For 5.426 acres owned by heirs of Thomas Rand, for site for barracks and quarters for the seacoast artillery troops, from appropriation "Barracks and quarters, seacoast defense," including $2.10 for cost of recording deeds	3,502.10
For 22.105 acres of Wendell estate, for same purpose, from same appropriation	75,000.00
The Engineer Department is to pay two-fifths of cost of all the land being acquired at Portsmouth Harbor.	
Sheridan, Fort, Ill.: For land of William McNeill and wife, 12.14 acres, more or less, for addition to the reservation adjacent to the target range.	36,707.50
Sparta Target Range Reservation, Wis.: For 4,685.76 acres for addition to the reservation	55,865.90
William Henry Harrison, Fort, Mont.: For land and water rights known as the "Head ranch," including about 750 acres, adjacent to the reservation, including cost of survey ($385)	50,385.00
Iloilo, P. I.: For 1,260 square meters and 8 square decimeters of land owned by E. Gardiner y Carrocino and wife, within the reservation, from appropriation "Barracks and quarters, Philippine Islands"	12,500.00
Batan coal mines, Cacraray Island, Liguan, Albay, P. I.: For 149,556 square meters of land owned by Arlington U. Betts and wife, for addition to the reservation	3,000.00

CONSTRUCTION WORK—GENERAL.

The policy outlined on page 20 of last year's annual report of reducing the cost of construction of buildings, through rearrangement of plans and conforming to commercial standards as to materials, has

been continued with satisfactory results. More individual plans, in accordance with the requirements of particular sites, have been prepared than heretofore, thus getting away from the rather monotonous effect produced by a continual use of the same design. The use of concrete has been extended and will be further developed, as shown from data being gathered, wherever found to be advantageous.

Among specific changes made in plans and specifications for buildings, with a view to reducing cost of construction, the following are mentioned: Omission of plaster on inside walls of barracks wherever practicable and substitution of paint placed directly on brick or concrete, with incidental reduction in cost of wood trimming, thus saving not only in first cost but also in cost of upkeep from year to year; toilet rooms in barracks have been reduced in size and material savings made in eliminating some of the expensive slate partitions heretofore used; in plans of officers' quarters the interior has been rearranged by eliminating waste spaces, thus permitting decrease in size without material reduction in accommodations; exterior trimming of buildings has been modified with a view to reduction in cost; specifications have been revised so as to require only material of standard dimensions in general use, thus obviating the necessity for articles of special forms, dimensions, and grades.

The construction of a number of buildings, each containing accommodations for four junior officers, on plans prepared in this office, has resulted in very material saving in cost of quarters for officers of that grade.

The continual increase in cost of nearly all material as well as labor used in construction work has offset to some extent the savings effected by the modifications alluded to, but the net result to date is a material reduction in the aggregate.

Arrangement of posts.—Fort Sill, Okla., is practically the first complete post this office has laid out for a number of years, and the first opportunity there has been presented for concentrating all of the public utilities at a post. For this post the funds for all purposes were available at approximately the same time, so that all the parts going to make up the whole could be considered at one time. The post will be heated, lighted, and supplied with water from the same plant, and in this plant will be contained the necessary refrigerating and ice-making machines. All the buildings on the post are to be heated by hot water, no houses having boilers in them. The boilers for heating will all be at the central plant, from which hot water will be pumped to each building at the post. The system is so designed that any buildings can be cut off at any time without interrupting the service to other buildings. Also the design is such that the temperature of the water being pumped can be absolutely regulated at the central plant. Therefore the heating of the buildings can be tempered according to the season or the temperature of the outside air. This heating will use all of the exhaust steam from the engines of the lighting, pumping, ice, and refrigerating plants. This central plant will also have enough power to operate a laundry when funds become available for establishing one at the post.

Having all these public utilities in one place reduces the number of employees required for their operation to a minimum, and obviates the necessity of hauling coal to many separate places, as the coal will be taken direct from the cars to the coal bunkers at the plant, thereby saving wear and tear on roads and reducing the work of the post

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quartermaster's office to a minimum. The economy of the system will be a maximum, as there will be no waste of heat, all of the heat from the steam generated being put to a useful purpose.

Heating at posts.—Effort has been made to determine practically the most economical method of supplying the heat authorized by law for all public buildings and officers' quarters at the military posts. The fuel allowance is fixed by orders and regulations and is, in general, sufficient for the purposes intended, yet it has been the belief of this office that fuel is wasted through the manner in which it is handled. In order to determine this, at two posts during the preceding heating season laborers under the charge of the post quartermaster have been authorized for tending the fires for heating purposes in all buildings at the post, and in each case a decided reduction in the amount of fuel consumed has been obtained, but the reduction of fuel, and in the cost of repairs and upkeep of the system, has not been sufficient to justify generally the employment of labor to care for the fires for all purposes at military posts, because the savings have been barely equal to the pay of the persons employed. The results so far obtained seem to indicate that the best method of securing satisfactory results would be to have under the post quartermaster one experienced man employed in a supervisory capacity, whose duty it would be to see that all furnaces are properly cleaned and fired by those detailed for that work, and that the coal is properly burned.

The amount expended for fuel for heating purposes only under this department each year is considerable (about $2,000,000), and the results so far obtained indicate that proper and conservative instructions or education in the handling and care of fuel, and the appliances in which it is burned, should result in considerable reduction of this amount.

Lighting at posts.—During the fiscal year 1910, material reductions of 15 to 20 per cent have been made in the price paid for electric current at several of the army posts. At the places where lighting systems have been installed and contracts made for supply of electric current, contract price, with a few exceptions, has been comparatively low, in line with the above reductions, considering the size of the post and the local conditions.

In the last part of December, 1909, the central power plant at Fort Monroe, Va., was put into operation, furnishing electrical power for the post lighting and for coast artillery school purposes. A report of the operation of this plant during the third quarter, fiscal year 1910, as compared with the amount actually expended for similar purposes during the same quarter for the fiscal year 1909, shows an actual saving of over $2,000. This saving is real, as it is the amount left after all expenses of operation, including labor and 10 per cent for interest depreciation, are considered. The report from the local authorities at Fort Monroe estimates that this plant will effect an actual saving of not less than $6,000 per annum. This plant will also furnish power for fortification purposes and for sewer pumping. In addition, heating of the coast artillery school buildings, including the barracks, will be done by exhaust steam, placing the Government at no additional expense in heating these new barracks, on account of the fact that this exhaust steam would otherwise go to waste.

The development of incandescent lamps by certain manufacturers has been considerable in the last few years. This department.

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beginning with the fiscal year 1910, supplies principally what is known as the metallized filament or Gem lamps, which require about five-sevenths the quantity of electric current to get the same illuminating power as the carbon lamp. The higher efficiency tungsten lamp has not been supplied for general use because of the high price of the lamp and its liability to mechanical breakage due to the shock in turning the light on and off at the socket. This lamp has been supplied for use only where the lamp is not turned on and off at the socket, but by a wall switch or a pendent switch. It is believed that the manufacturers will in time so develop the tungsten lamp that the brittleness of the filament will be overcome to such an extent that their general use will be warranted. When this improvement in their manufacture has been effected they will be supplied. The use of the higher efficiency lamps which are now being supplied should materially reduce the amount of current used throughout the service, and therefore the cost to the Government. This is entirely in line with the standard commercial practice of to-day.

SUPPLIES.

Forage.—There were purchased during the fiscal year 346,598,980 pounds of forage (including bedding) at a cost of $3,623,084.04, being an average of $1.045 per 100 pounds, against $1.107 per 100 pounds for the fiscal year 1909. This includes also the forage used in the Philippine Islands, Alaska, Hawaiian Islands, and Porto Rico.

Fuel and mineral oil.—Purchases of fuel of all kinds, except for transports and other vessels, aggregated during the fiscal year $1,992,108.33. Purchases of fuel for transports and other vessels aggregated $610,408.25. Purchases of mineral oil for lighting aggregated $173,612.41, at an average cost of 20.5 cents per gallon, compared with 21.8 cents per gallon for 1909. This does not include fuel and mineral oil used in the Philippine Islands.

Animals and means of transportation.—Following is a statement of purchases, remounts, draft and pack animals, vehicles, and articles pertaining to transportation, viz:

	Number.	Total cost.	Average.	Average cost, 1909.
Cavalry horses	1,241	$214,990.71	$173.24	—$160.057
Artillery horses	394	80,869.91	205.25	— 191.12
Riding horses	408	69,830.89	171.15	— 145.59
Draft horses	127	29,593.16	233.01	— 225.65
Young horses	962	122,604.46	127.45	146.28
Draft mules	754	176,733.56	234.39	— 182.72
Riding mules	85	18,490.05	217.53	— 158.82
Pack mules	339	68,444.75	201.90	— 158.82
Dogs	47	1,870.13	39.79	44.57
Automobiles	1	1,575.00	1,575.00	3,166.44
Escort wagons	600	58,484.00	97.47	— 94.745
Farm wagons	2	77.88	38.94	31.10
Spring wagons:				
Delivery wagons	6	686.50	114.42	145.00
Wagonettes	2	1,040.00	520.00	.....
Water wagons, sprinkling	9	2,815.62	312.85	— 283.18
Ambulances	100	21,887.00	218.87	270.00
Express wagons	11	852.50	77.50	155.88
Miscellaneous wagons	69	10,706.68	155.15	160.89
Carts:				
Dump	88	4,139.25	46.96	— 41.17
Sanitary	36	8,150.00	226.39	— 205.34
Spring	3	292.55	97.52	— 55.00
Hand	199	4,371.90	21.94	— 16.64
Trucks:				
Two-horse	1	660.00	660.00	— 361.42
Four-horse	5	2,501.00	500.20	— 473.37
Sleighs	6	210.00	35.00	44.80
Bicycles	26	827.70	31.83	44.88

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	Number.	Total cost.	Average.	Average cost, 1909.
Harness:				
Single sets, ambulance or wagon	746	$14,382.30	$19.28	—$18.59
Double sets	77	4,092.64	53.15	— 38.28
Cart	71	1,990.00	28.03	29.82
Dog	5	30.00	6.00	— 2.48
Saddles:				
Riding	193	4,739.88	24.56	25.27
Wagon	12	81.00	6.75	.....
Aparejos	237	11,317.27	47.75	— 41.05
Excavators, odorless	1	700.00	700.00	.....

Comparison with last year's report, with but few exceptions, shows increases in the prices paid for animals and in manufactured articles purchased. The reduction in average cost of young horses purchased during the present fiscal year is due to specially favorable conditions under which a considerable number of horses were obtained in the vicinity of Fort Keogh, Mont., soon after the remount depot was established there.

During the fiscal year 1,617 animals were condemned, sold, etc., and 586 died, a total of 2,203 animals. There remained on hand on June 30, 1910, cavalry horses, 10,607; artillery horses, 2,773; draft horses, 1,468; young horses, 1,400; mules, 8,266; dogs, 198—a total of 24,712 animals. This is exclusive of the animals in the Philippine Islands. On July 1, 1910, there were reported on hand in the Philippines Division 4,917 horses, 3,134 mules, 28 native ponies.

Issues to the militia.—Miscellaneous supplies to the value of $23,769.26 were issued to the organized militia during the fiscal year under authority of statutes providing for such issues. The department's appropriations are reimbursed this cost from the militia appropriations. In addition to the above, gratuitous issue of supplies was made to the organized militia of the District of Columbia during the fiscal year to the value of $377.55.

REMOUNT SERVICE.

During the fiscal year 962 young horses were purchased for the remount service at an average cost of $127.45, which is $45.79 less than average cost of aged cavalry and $77.80 less than average cost of aged artillery, and $43.70 less than average cost of aged riding horses purchased in open market and under contract.

The remount depots are being operated in accordance with the plan outlined in the report of the Quartermaster-General for the fiscal year 1907.

Uniformly gratifying reports have been received as to the class of horses furnished for the mounted service through the remount depots. This method of supply has now been in operation sufficiently long to demonstrate that it is a vast improvement over the old method of supplying remounts by purchase of aged horses under contracts or in open market. This fact is further evidenced by the growing practice on the part of officers of purchasing horses from among the animals trained at the remount depots. About sixty were sold to officers during the fiscal year, although such purchases were not encouraged, as the horses were more needed for issues. A reduction has also been effected in the appropriation for purchase of remounts. For the fiscal year 1909 the appropriation was $514,678; for the fiscal year 1910 it was $510,000, a reduction of $4,678; for the fiscal year 1911 the appropriation is $434,487.90, a reduction from fiscal year 1909 of

$80,190.10, a total decrease of $84,868.10; and further decreases are considered practicable notwithstanding increased demands and increase in prices from year to year.

There were issued from the Fort Reno Remount Depot 308 cavalry, 45 artillery, and 104 riding horses during the year. Forty horses were sold to officers at cost price to the Government.

Scarcity of suitable horses.—From reports received from officers purchasing young horses it would seem that there is a scarcity in all parts of the country of horses suitable for the mounted service. This is probably due to the discontinuance of the breeding of well-bred horses of the type required for military purposes. This question was taken up with the Secretary of War, who brought the matter to the attention of the Department of Agriculture, which resulted in representatives of the Agricultural and War departments being designated to formulate a plan for encouraging the breeding of horses suitable for the mounted service. What is believed to be an excellent and practicable plan has been determined upon and will be carried into effect by the Department of Agriculture. There can be no doubt but what satisfactory results will be obtained and that in a few years the scarcity of well-bred horses of the type required for the mounted service will have been overcome.

Service detachments at remount depots.—Aside from the question of economy, it would be greatly in the interests of increased efficiency to have at each remount depot permanent service detachments of enlisted men, with proper proportion of noncommissioned officers of various grades, such as are now provided for in service schools at Forts Riley and Leavenworth, Kans., and for the Army War College. Favorable action to bring this about is recommended.

TRANSPORTATION.

During the fiscal year there was transported by the Quartermaster's Department 2,224,231 passengers, 17,989 animals, 256,802 tons of freight, $7,964,063.64 funds, and 214 remains of officers, enlisted men, and civilians, as shown by the following statement:

	Railroads.	Commercial vessels.	Wagon.	Stage.	Express.	Government vessels.[a]	Grand total.
Passengers:							
Officers	4,355	199	231	52	.....	78,476	83,313
Enlisted men	97,849	7,181	273	188	.....	1,087,093	1,192,584
Civilians	3,500	364	303	166	.....	944,001	948,334
Total	105,704	7,744	807	406	.....	2,109,570	2,224,231
Animals:							
Horses	11,370	411	.....	.....	.....	735	12,516
Mules	3,074	2,111	.....	.....	.....	288	5,473
Total	14,444	2,522	.....	.....	.....	1,023	17,989
Stores (tons):							
Quartermaster	11,160	38,718	6,420	55	61	22,181	78,595
Subsistence	29,953	10,019	5,516	.....	199	13,853	59,540
Ordnance	21,888	7,709	2,535	.....	49	8,450	40,631
Medical	1,737	779	654	.....	24	475	3,669
Signal	2,763	1,527	179	.....	40	136	4,645
Miscellaneous	4,178	6,466	35,068	.....	87	23,923	69,722
Total	71,679	65,218	50,372	55	460	69,018	256,802
Funds	.....	$9,217	.....	.....	$7,954,846.64	.....	$7,964,063.64
Remains	25	4	.....	2	168	15	214

[a] Includes all passengers carried on government boats between posts and adjacent cities.

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This statement shows a total increase of 290,256 passengers over the number transported during the fiscal year 1909, but this is accounted for by the increased number carried by owned harbor boats during the year, viz, 326,830 persons, due to additional boats in service and increased demands thereon. The passengers transported by commercial means of transportation—railroads, steamers, and stage lines—show a decrease of 36,574 in number.

In the freight transportation there is a decrease of 10,051 animals transported, while a decrease in tonnage in connection with transportation of supplies of 107,639 tons of 2,000 pounds is reported as follows:

Quartermaster supplies, decrease of approximately 50 per cent.
Subsistence supplies, no increase or decrease.
Ordnance supplies, decrease of approximately 33 per cent.
Medical supplies, no increase or decrease.
Signal supplies, decrease of approximately 10 per cent.
Miscellaneous supplies, decrease of approximately 15 per cent.

It is gratifying to note that the total tonnage of express shipments decreased from 779 tons to 460 tons, due to strict supervision exercised by this office over such shipments.

Statement showing shipments in deep-sea commercial vessels.[a]

	General merchandise, forage, etc.	Lumber.	Passengers.	Cost.
American:	*Tons.*	*Feet.*	*Number.*	
Philippines	10,322	.....	1	$64,107.64
Hawaii	1,349	.....	2	16,318.67
Porto Rico	723	.....	.....	11,850.00
Alaska	4,455	462,944	253	102,609.67
Total	16,849	462,944	256	194,885.98
Foreign:				
Philippines	19,140	5,812,030	.....	183,767.64
Hawaii	35	.....	.....	1,214.10
Other ports	7	.....	.....	1,448.79
Total	19,182	5,812,030	.....	186,430.53
Grand total	36,031	6,274,974	256	381,316.51

[a] The shipments mentioned in this statement are included in those given in tables on previous page.

Statement showing shipments to Manila, P. I., at the through rate of $10 per ton of 2,000 pounds, or 40 cubic feet, carriers' option.[a]

Shipped from—	Route.	Tons.	Cubic feet.	Cost.
Omaha, Nebr	Southern Pacific	510	50,277	$11,617.77
New York City	Atchison, Topeka and Santa Fe Ry	6,128	330,804	82,700.00
Chicago, Ill	do	394	18,157	4,539.34
Do	Southern Pacific	810	43,156	10,789.13
St. Louis, Mo	Atchison, Topeka & Santa Fe Ry	225	49,301	16,568.97
Do	Southern Pacific	247	27,455	10,846.94
Jeffersonville, Ind	Atchison, Topeka & Santa Fe Ry	252	15,270	6,617.04
Do	Southern Pacific	258	13,181	4,999.82
Total		8,824	547,601	148,679.01

[a] The shipments mentioned in this statement are included in those given in the tables on previous page.

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Total expenditure for movements of troops on account of changes of stations and other incidents of the military service during the fiscal year	$543,912.08
For other movements of troops	155,306.15
Total	699,218.23

Expenditures for other items pertaining to the transportation service of the army were as follows:

Rental of wharves, docks, and landing places for harbor boats	$51,091.56
Shipment of baggage for officers, noncommissioned officers, and civilian employees, including packing and crating	274,973.68
Telephone service	38,443.07
Transportation, military telegraph lines in Alaska, exclusive of operations of transport *Burnside*	89,587.51
Street-car and ferry tickets	19,405.51

Payments made during the year from appropriation "Transportation of the army."

	Rail.	Water.	Wagon.	Stage.	Total.
Fiscal year:					
1908	$167,597.85	$5,579.83	$302.57	$16.00	$173,496.25
1909	991,643.95	178,022.87	2,285.14	242.98	1,172,194.94
1910	1,633,206.65	350,723.22	38,314.82	2,193.85	2,024,438.54
Total	2,792,448.45	534,325.94	40,902.53	2,425.83	3,370,129.73

Outstanding accounts payable from appropriation "Transportation of the army" for fiscal year 1910 and previous years.

	Rail.	Water.	Wagon.	Stage.	Total.
Fiscal year:					
1905	$1.12	$14.43			$15.55
1906	252.31				252.31
1907	2,060.61	.87			2,061.48
1908	27,083.92	2.08			27,086.00
1909	402,551.91	15,683.91		$25.60	418,261.42
1910	965,296.73	266,865.72	$5,815.38	197.45	1,238,175.28
Total	1,397,246.60	282,567.01	5,815.38	223.05	1,685,852.04

Consolidation of offices settling railway and steamship transportation accounts.—At the beginning of the fiscal year transportation accounts of railroad and steamship lines were adjusted and paid by disbursing quartermasters at fifteen different places. Under this arrangement the average amount of work devolving upon each office would have been about 7 per cent of the aggregate. It was found, however, that some of the offices were transacting less than 1 per cent of the total volume of this business. The accounts requiring adjustment in their relation to the location of railroads and steamship lines concerned rendered it impracticable to adjust the work so as to give each settling office even approximately an equal share of the business. Therefore, with a view to placing this work in the hands of as few officers as practicable, consistent with efficiency and promptness in settlement as well as equalizing as far as possible the quantity of work required at each office, a readjustment was made by discontinuing the settlement of these accounts at six of the offices which had been doing the smallest amount and apportioning it among the nine remaining.

In the case of the discontinuance of Omaha as a disbursing office for transportation accounts, other reasons were taken into considera-

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tion. Due to the settlement of the bonded indebtedness of the central and western Pacific lines west of Ogden, it was not necessary after July, 1908, to issue a separate bill of lading east and west of Ogden, through bills of lading in all cases after July, 1908, being issued from originating points to destinations on the Pacific coast via this route. Such action resulted in the transfer of a large amount of settlements for railroad transportation from the Omaha office to the San Francisco office, reducing to a large extent payments for transportation heretofore made by the Omaha office.

Shipment of excess baggage of officers on government bills of lading with the authorized allowance.—The act of Congress approved March 23, 1910, as published in General Orders, No. 54, War Department, April 6, 1910, included under the heading "Transportation of the army and its supplies," on page 20, the following provision:

> *Provided*, That hereafter baggage in excess of regulation change of station allowances may be shipped with such allowances and reimbursement collected for transportation charges on such excess.

Prior to the date of the approval of this act, there was no authority of law or regulation for the shipment of excess baggage of officers on government bill of lading, the government allowance being shipped on government bill of lading at public expense, and any excess owned by the officer being shipped separately on commercial bill of lading at the expense of the officer.

This provision of law was effective from the date of its passage, March 23, 1910, and shipments thus far have been insufficient to justify this office in expressing an opinion as to the economy or other advantages accruing thereunder.

ARMY TRANSPORT SERVICE.

Sailings.—Regular sailings of transports carrying troops and military supplies between the United States and the Philippine Islands have been maintained during the fiscal year. Also the *Buford* was dispatched from Seattle, Wash., to Manila, P. I., with troops; the *Crook* was sent from San Francisco, Cal., to Manila, for service in the Philippine Islands, and, by authority of Congress, the *Sumner* sailed from New York City, June 16, 1910, to Buenos Aires, whither it carried the representatives of the United States to the Fourth International Congress of American States.

Wireless telegraph equipment.—The *Buford, Dix, Kilpatrick,* and *Sumner* have been equipped with wireless telegraph apparatus, which completes such installations on the seagoing transports in active service.

Repairs.—The vessels of the transport service have been kept in good repair; a general overhauling of the *Sherman* was completed, and the work of overhauling the *Thomas* was begun.

Savings effected.—The saving to the Government by the operation of the army transport service over the cost of similar service under the lowest rate offered by commercial vessels was approximately $907,000. In addition, transportation to the value of $517,312.32 was furnished for the families of officers, enlisted men, employees of the federal and insular governments, and others connected with the service who were not entitled to transportation at public expense, but were furnished transportation without charge.

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HARBOR BOAT SERVICE.

Construction.—Three steel harbor steamers of the second class and one steel ferryboat were completed and placed in service during the fiscal year.

Inspection.—In order to keep this office more completely in touch with the physical condition of the vessels of the harbor-boat service, as well as with the efficiency of the crews, a marine inspector has been appointed for duty in the Department of the East and another for duty in the Department of the Gulf. They are to make inspections of all steamers, launches, and other boats owned by the Quartermaster's Department and operated under direction of the respective chief quartermasters. It is intended that these inspectors shall inspect the physical condition of each boat at least three or four times a year and prepare complete detailed reports upon their condition and upon the care being exercised by crews in daily maintenance and operation, giving special attention to those parts of the vessels not readily observable in casual inspections. These inspectors will also prepare specifications and estimates of cost for semiannual repairs and overhauling and supervise the work while the boats are in the hands of contractors. They will give attention to whether the crews so maintain and operate their vessels as to keep the entire physical condition in the best working order and will give necessary instructions as to the numerous items of minor repairs possible to be done at once by the crews, but which, if neglected, may later involve expensive work under contracts. They will also be present, whenever possible, on boiler-cleaning days, to see that proper care is taken of the boilers and that the work necessary is done and so done as to be most advantageous to the department. It is believed that this action will result in the boats being maintained at the highest state of efficiency with the least outlay practicable.

Cost of harbor-boat service.—The cost of the operation and maintenance of the 129 owned and 3 loaned vessels engaged in quartermasters', artillery, and signal work in connection with the various seacoast posts was $1,055,554.64. There were carried by these vessels during the year 2,353,603 passengers and 133,597,768 pounds of freight.

Purchase of water barge.—To relieve the regular freight and passenger steamers operating in San Francisco Harbor of the duty of supplying water to island posts in San Francisco Bay, there was purchased during the year at a cost of $34,500 a steel water barge having a length of 140 feet, 30 feet beam, and 12 feet depth, with a tank capacity of 100,000 gallons.

CLOTHING, CAMP, AND GARRISON EQUIPAGE.

Appropriation made by Congress for clothing and equipage for the Regular Army for the fiscal year 1910	$7,000,000.00
Unexpended June 30, 1910	40,449.33
Total expended for the Regular Army	6,959,550.67
Expended for clothing and equipage for the organized militia of the States and Territories	1,998,387.05
Total expenditures for clothing and equipage for the year	8,957,937.72

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The amount expended for clothing and equipage for the organized militia during the year is approximately 28.5 per cent of the expenditure for the Regular Army and 22.4 per cent of the aggregate amount expended. It is $1,041,593.05 in excess of expenditures for the militia in the fiscal year 1909, being more than double the amount for that year. The Quartermaster's Department is reimbursed for issues to the militia by Treasury settlements from appropriations made by Congress for the militia.

In addition to issues made to the militia, sales of clothing and equipage were made as follows:

To governors of States and Territories for use of the militia	$18,260.78
To individual officers of the militia	993.11
To other departments and bureaus	11,773.67
Total	31,027.56

The amounts received from these sales are credited to the Quartermaster's Department and made available for replacing the articles sold.

Sales at auction.—There were sold at public auction during the past fiscal year, at the purchasing and manufacturing depots of this department, condemned clothing and equipage supplies, cuttings, etc. The sum realized amounted to $22,300.58. The expenses connected with making these sales amounted to $4,501.76, leaving a surplus of $17,798.82, which was covered into the Treasury of the United States and credited to miscellaneous receipts, as required by law.

From the annual report of the chief quartermaster of the Philippines Division it is ascertained that the sum of $5,140.36 was realized from sales of condemned articles of clothing and equipage during the last fiscal year. The expenses of these sales were $132.04, leaving $5,008.32 to be covered into the Treasury to the credit of miscellaneous receipts.

Total value of clothing and equipage sold at auction, $27,440.94.

From information furnished by the Paymaster-General of the Army it appears that there was paid or credited by his department to enlisted men of the army during the fiscal year for clothing authorized but not drawn in the period from April 1, 1909, to March 31, 1910, $656,225; there was collected from enlisted men during the same period for clothing overdrawn $247,808.92, leaving a balance of $408,416.08 in favor of enlisted men.

From this it is clear that the present clothing allowance to enlisted men is sufficient for their needs.

Reserve supply.—Steps have been taken to carry into effect the plan of the Quartermaster-General to procure and have available a supply of clothing sufficient to uniform 85,000 men, based upon the first year's allowance; also a stock of equipage based upon the average annual issues. Considerable progress has been made in this direction, and it is expected to practically complete this reserve stock during the fiscal year 1911.

Distribution of clothing from depots.—To facilitate the distribution of clothing to the army and the militia and to prevent, as far as practicable, the delays in the shipment of supplies heretofore experienced, the Quartermaster-General decided to make the Philadelphia and San Francisco depots the only points of distribution. Requisitions from posts are now submitted by chief quartermasters and

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quartermasters of independent stations to the issuing depots direct, instead of forwarding the same to this office for action.

Distribution is made as follows:

From the San Francisco (Cal.) depot: (1) All enlisted men of the Regular Army stationed in the States of California and Nevada and in the Hawaiian Islands; (2) all clothing for Philippine Scouts; (3) all clothing for the militia in the States of California and Nevada and in the Hawaiian Islands; (4) special arctic clothing for troops in Alaska; and (5) clothing for the transport and harbor-boat services on the Pacific coast.

From the Philadelphia (Pa.) depot: Clothing for enlisted men of the Regular Army in the United States, including Alaska, the Philippine Islands, and Porto Rico, and for the militia in the United States other than indicated above.

Complaints regarding delays in the shipment of supplies, formerly quite frequent, have ceased, proving conclusively that the new system, as indicated, has accomplished its object in this respect.

Improvements and modifications in material for and manufacture of clothing and equipage.—In continuation of the policy of the department to bring supplies of all kinds as far as practicable in conformity to commercial articles of the same kind a number of modifications in material and methods of manufacture of clothing has been made during the year. Among these may be mentioned:

Revision of patterns of uniform clothing.—Improvements in the construction and workmanship to secure greater serviceability combined with a better fit have been made in the dress coats, woolen and cotton service coats and breeches, and olive drab overcoats for the enlisted men.

New standard samples have been manufactured and specifications for same prepared and distributed to the manufacturing depots.

Improvements in shoes.—With a view to securing a better fit and greater comfort to the wearer, the back stay and heavy stitching of the same has been eliminated. Provision has also been made for hereafter using leather tanned on the grain instead of on the flesh side, thereby producing a more dressy appearance and giving the leather greater water-repellant qualities. This change will admit of wider competition, as leather of this character is now being used by the principal manufacturers of commercial shoes.

Shoe lasts.—To secure the widest possible competition in the supply of shoes to the army, it having been represented that, on account of the great expense incident to the procurement of lasts by contractors, the smaller manufacturers of shoes would be excluded from bidding, the Quartermaster-General decided to purchase a supply of lasts and furnish them to the firms to which contracts would be awarded.

White cotton gloves.—The white cotton gloves heretofore supplied to the army were of foreign manufacture. Of late years this particular industry is being developed in the United States, and in order to encourage the manufacture of cotton gloves of domestic production contracts for such gloves have been awarded during the last fiscal year. This office is of the opinion that in a short time the machinery upon which they are made will be so perfected that the product will be equal to that of any other country.

Horsehide gauntlets.—It having been represented that the supply of buckskin used in the manufacture of gauntlets for the mounted serv-

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ice is very limited, and that repeated wettings of the buckskin renders the same liable to damage, this office has procured a few samples of horsehide gauntlets, which will be sent to Fort Riley, Kans., for comparative trial with the buckskin gauntlets now furnished by this department. No purchases of horsehide gauntlets will be made until the advisability of making a change shall have been fully demonstrated.

Canvas bags for recruits en route to their first stations.—A canvas bag, suitable for the use of recruits in transporting their clothing from recruit depots to their first stations, has been approved by the Assistant Secretary of War, and standard samples and specifications are now in process of preparation.

Minor changes have been made in details of cut in garments, in lining, methods of sewing and arrangement, and in material for underwear by eliminating from specifications a number of distinct features that have heretofore been in use, so that practically it may be stated that except in regard to color, form, and cut of outer garments, as prescribed by law and regulation, the clothes worn by enlisted men of the army conform to high grade standard articles of the same kind found in the general markets.

Minor changes have also been made in the number of articles of clothing and equipage in order to better adapt them to the uses for which intended, as well as to reduce cost of production, as developed by practical experience or recommended by boards of officers. Among these may be mentioned:

Leggings.—Consideration has also been given during the last fiscal year to improve the pattern of leggings, the present pattern not having met with favor.

Waterproof ponchos, slickers, and shelter tents.—The department has for some years, but especially during the last fiscal year, conducted experiments with a view to securing a material out of which to make these articles which, combined with lightness and durability, should possess greater water-repellant qualities than those now furnished to the army. The experiments will continue until satisfactory results shall have been obtained.

Oilskin clothing for enlisted men on mine planters and cable steamers.—Black oilskin clothing, including hats and half-hip rubber boots, will hereafter be furnished by the Quartermaster's Department for the use of enlisted men of each mine company of the Coast Artillery Corps and of each mine planter and cable steamer.

Surplus kit bags.—A surplus kit bag for use of infantry organizations, conforming to a description furnished by the Infantry Equipment Board, is now being made at the Philadelphia depot, and as soon as perfected will be submitted to the Secretary of War for final approval.

Canvas bags for protection of tentage.—With the view to protecting the tentage for the army while in transit, twenty-five canvas bags for wall tents were manufactured at a cost of $1.10 each and furnished to the quartermaster at the War College in this city for experimental trial with the War College tentage by officers on staff rides.

The subject will receive further consideration as soon as reports upon the trial shall have been received.

Bedding rolls for officers.—A bedding roll, suitable for use of officers while in camp or on active campaign, has been adopted, after hav-

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ing been favorably considered by the Chief of Staff of the Army. Announcement of their adoption was made in Circular 22, War Department, May 3, 1909. A supply has been manufactured, and officers can obtain these rolls at cost price, $6.28 each.

Iron bedsteads.—Improvements in enameling iron bedsteads to prevent chipping of the enamel have been made.

Duck of improved construction.—For some time past it has been apparent that a more satisfactory duck for use in manufacturing tents should be procured if practicable. With this in view, the question was, during the past fiscal year, taken up with the various manufacturers of duck, and samples of material slightly heavier and of different construction from that used at present were obtained, the duck being dyed in the fiber to an olive drab shade. The various samples submitted have been ordered to be manufactured into tents, and they will be submitted to a careful test for at least three months before further action in the premises is taken.

CLAIMS.

During the fiscal year 743 miscellaneous claims and accounts, amounting to $94,216.60, were settled, and 24, amounting to $1,927.55, remained on hand for action at the close of the year.

One hundred and nine confederate horse claims were investigated and settled by the payment of $14,000, and 31 such claims were disallowed, making a total of 140 claims finally disposed of during the fiscal year. There remained in the office at the close of the year 419 claims awaiting final action.

During the year the papers in 39 claims for quartermaster stores taken during the civil war for use of the army, which had been investigated and disallowed by the Quartermaster-General, under provisions of the act of July 4, 1864, were transmitted to the Department of Justice or the Court of Claims as evidence in claims pending in that court.

Claims for damage to private property.—In the annual estimates of appropriation for the fiscal year 1911 there was included the sum of $10,840.95 for the payment of 113 claims for damages to private property, which had been investigated and the claims transmitted to this office for settlement. This estimate is published in Document No. 177, House of Representatives, Sixty-first Congress, second session, page 404.

Additional claims of the same nature have been subsequently received in this office, special estimates were prepared and submitted to Congress, one for $1,051.09, for payment of 16 claims, which is published in Document No. 519, Sixty-first Congress, second session, and one for $6,666.10, for payment of 21 claims, which is published in Document No. 897, Sixty-first Congress, second session. The total number and amount of these claims for which estimates were submitted to Congress at its last session are 150, amounting to $18,558.14. No appropriation was made for the payment of these claims.

There are several additional claims for damages now pending in this office, which, having been investigated and the amount justly due the claimants determined, are ready to be submitted to the Secretary of War, with the recommendation for an appropriation for their payment.

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The claimants in all these cases have been advised from time to time of the status of their claims and that settlement awaits an appropriation.

It is recommended that measures be taken to bring these claims, which are justly due to the claimants, to the attention of Congress.

NATIONAL CEMETERIES.

The Quartermaster's Department has jurisdiction over 84 national cemeteries and several soldiers' lots located in private cemeteries; also of Crab Island, Lake Champlain, N. Y., the surrender monument at Yorktown, Va., and several other sites of historical interest, all of which are cared for and improved under the annual appropriation for care and maintenance of national cemeteries.

The national cemeteries are classified as follows: First class, 26; second class, 20; third class, 16; fourth class, 22. During the fiscal year 1910, 1,468 interments were made in the national cemeteries, and at the close of the fiscal year the total interments were, known, 207,075; unknown, 153,678; total, 360,753.

The buildings, drives, walks, walls, fences, monuments, etc., at these various national cemeteries, soldiers' lots, etc., have been repaired where necessary and kept in proper condition.

Under date of October 14, 1909, a severe cyclone struck the Shiloh National Cemetery, located at Pittsburg Landing, Tenn. The path of the cyclone was about 1,000 feet in width, with its center passing over the main entrance to the cemetery. Practically everything in its path was destroyed, the lodge being the only structure not completely razed. Trees were blown down or stripped of their limbs and ruined. About 800 headstones were broken, and many others were blown over. The lodge has been temporarily repaired, so as to make it habitable, and the grounds have been cleared up. An appropriation of $18,000 is now available for repairing the damage, and plans and specifications for improvements are in course of preparation, and the work of restoration will be accomplished as expeditiously as possible.

The appropriations of the past several years have not been adequate to cover the cost of maintenance and the making of the necessary improvements at the various national cemeteries, etc., and considerable work in the way of constructing new buildings, etc., is now being held in abeyance, due to lack of funds. The estimates for national cemeteries for the fiscal year 1912 have been increased sufficiently to cover such improvements as are urgent, and it is hoped sufficient funds will be appropriated to enable the department to make some headway along this line.

Roads to national cemeteries.—The government approach roadways which have been constructed by special authority of Congress to some of the national cemeteries have been kept in proper repair so far as the appropriation for this work was available, the act prohibiting the expenditure of any funds on any portions of these roadways situated within the corporate limits of cities, towns, or villages.

Contract has been awarded for resurfacing that portion of the road to the Richmond (Va.) National Cemetery without the city limits, at a cost of approximately $8,200. Repairs have been made to the bridge on the road to the Port Hudson (La.) National Ceme-

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tery, at a cost of $636.41. The balance of the appropriation has been used in making minor repairs to the other roads.

Antietam battlefield.—The necessary repairs were made to the roads, inclosures, observation tower, monuments, tablets, etc. A road roller and a sprinkling wagon were purchased for use on the great length of roads traversing the battlefield, and a shed was constructed for their shelter.

The fences, which are composed of wire strung on wooden posts, inclosing the 5 miles of roads on the battlefield are in bad condition. The posts are rotting, and the wire is rusting and breaking. Substantial fences composed of galvanized piping supported by iron or concrete posts are needed. An estimate for $22,000 for this purpose has been included in the cemeterial branch estimates for the fiscal year 1912. With the exception of the fences, the battlefield is in good condition.

The battlefield is in charge of a special superintendent.

Confederate mound, Chicago.—This is a plot of 69,064 square feet in the Oakwood Cemetery, Hyde Park, Chicago, and contains the remains of 12 Union and 4,039 Confederate soldiers who died at Camp Douglas during the war of the rebellion. It is cared for by the Oakwood Cemetery Association at an annual cost of $250, which is specially appropriated for the purpose.

Headstones.—Nineteen thousand two hundred headstones were furnished for marking the graves of soldiers, sailors, and marines buried in national, post, city, and village cemeteries, and civilians buried in post cemeteries. These headstones were procured by contract, at a cost of $2.65 each, and are made of white marble. They are 39 inches long by 12 inches wide by 4 inches thick, with a slightly rounded top. The upper half is sand-rubbed and the inscription is cut within a sunken shield in raised letters flush with the surface of the stone, the letters being 1 inch long by two-sixteenths of an inch deep.

Removal of remains.—It has been the custom of the department for many years to remove the remains of officers and soldiers found buried in cemeteries of abandoned posts and in abandoned or neglected private cemeteries to national cemeteries for final interment. No reinterments of this kind were made during the fiscal year ended June 30, 1910, on account of a decision of the Comptroller of the Treasury holding that such work was not authorized by law. The wording of the appropriation act for the fiscal year 1911 was modified to meet the objections of the Comptroller and these reinterments were resumed on July 1, 1910.

Indigent ex-Union soldiers.—Under the appropriation provided for the payment of burial expenses of soldiers, sailors, and marines of the United States service dying in indigent circumstances within the limits of the District of Columbia, 65 claims were paid and 6 were rejected. Of the claims paid 19 were paid from fiscal year 1909 funds and 46 from fiscal year 1910 funds. At the close of the fiscal year 7 claims payable from 1910 funds were awaiting investigation and settlement, and it is probable that several more such claims will be presented during the fiscal year 1911.

Disposition of remains.—Under the law the Quartermaster's Department may ship home at government expense the remains of officers and soldiers on the active list who die in line of duty,

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and the remains of civil employees of the army who die abroad or on army transports.

The remains of 89 officers, soldiers, and civil employees were received at San Francisco from abroad and disposed of as follows:

Shipped home	34
Delivered to friends	15
Interred in the San Francisco National Cemetery	28
On hand at the San Francisco morgue July 1, 1910	12
Total	89

Of the 11 remains on hand at the San Francisco morgue on July 1, 1909, 2 were shipped home and 9 were interred in the San Francisco National Cemetery.

The remains of 3 soldiers who died in Alaska were received at Seattle and shipped home for burial.

In addition to the above the remains of 27 sailors and marines were brought to San Francisco on army transports, of which 23 were shipped home at the expense of the Navy Department and 4 were delivered to friends.

Of the 13 officers and 250 enlisted men on the active list who died within the United States, the remains of 95 were shipped home at government expense, 26 were turned over to relatives, and 142 were interred in military, post, or national cemeteries.

Disinterring corps.—This corps is maintained in the Philippines for disinterring, preparing, and shipping to the United States the remains of officers, soldiers, and civil employees of the army. The corps covers all the islands of the Philippine group, and remains are returned to the United States at the earliest date the health regulations and the climatic conditions of the islands will permit.

Superintendents.—There are 76 superintendents of national cemeteries authorized by law, eight of the national cemeteries being in charge of caretakers. Two superintendents died during the year. At the close of the fiscal year 74 superintendents and 2 acting superintendents were on duty, and there were 6 assistant superintendents, or probationists, on duty awaiting appointment as superintendents.

It has been the custom of this office, with a few exceptions, to give preference to civil-war veterans in making these appointments. This is not, however, required by law, and due to the advancing age of these veterans it is thought advisable to make a departure from this custom and to appoint younger men to these positions in future.

Miscellaneous.—During the fiscal year cast-iron tablets, 56 inches high by 33 inches wide, containing the words of the Gettysburg address of the late President Lincoln, were placed in position on the lodges at seventy-five of the national cemeteries and on iron standards at two of the national cemeteries which have no lodges. These tablets were manufactured during the fiscal year 1909 under a special appropriation.

Contract has been made for placing an iron grating, dome shaped, on the fence recently erected around the monument commemorating the battle of Big Hole, Montana, the inclosing of this monument having been necessary to protect it from relic hunters. Provision has also been made for chamfering the monument, with a view to overcoming as far as practicable such damage as has been done by relic hunters.

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Post cemeteries.—A new post cemetery was laid out at Madison Barracks, N. Y., and inclosed with a substantial iron fence, the old cemetery being abandoned and the remains therein removed to the new cemetery. New iron fences were erected to inclose the post cemeteries located at Boise Barracks, Idaho; Fort Douglas, Utah; Fort George Wright, Wash.; and Fort Rosecrans, Cal. A new wooden fence was erected to inclose the post cemetery at Fort Dade, Fla. Extensive repairs and improvements were made to the post cemeteries located at Fort Benjamin Harrison, Ind.; Boise Barracks, Idaho; Fort McDowell, Cal.; Fort Sheridan, Ill.; Key West Barracks, Fla.; Fort Niagara, N. Y.; the Presidio of Monterey, Cal.; and San Juan, P. R.

Such minor repairs and improvements as were necessary were made at the various other post cemeteries.

RETURNS AND ACCOUNTS.

The work of this office during the year on subjects under above headings is as follows:

Returns:	
On hand June 30, 1909	378
Received during fiscal year	2,030
Examined during fiscal year	2,211
On hand for examination June 30, 1910	233
Returns of militia examined	47
Letters written	7,439
Accounts:	
On hand July 1, 1909	69
Received during the fiscal year	3,936
Examined and transferred to the Auditor for the War Department for final settlement	3,996
On hand at close of fiscal year	9
Certificates of deposit received	4,200

Vouchers for all disbursements must accompany monthly accounts of the officers, which are required to be forwarded within ten days of the end of the month to which they relate, except in the case of military attachés, who are allowed twenty days.

Money accounts vary in the number of vouchers which accompany them between four or five to a thousand or more. At stations where a large number of employees are paid the number of names on a single payroll will frequently run into the hundreds. The administrative examination of such accounts entails a large amount of work, which is frequently increased, owing to the fact that at several depots employees are paid as often as four times a month, thus quadrupling the work in this office.

SUPPLY DEPOTS.

Constant efforts have been made to reduce the expense of administration and operation and increase the efficiency of the principal supply depots of the Quartermaster's Department of the Army, and these efforts have met with a large measure of success.

Accumulations of obsolete and surplus supplies at some of the older depots have been wholly absorbed or materially reduced by a system of exchange between the depots whenever due regard to cost of transportation rendered that course advisable. The accumulation of supplies in excess of requirements at any one depot which could

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be utilized at another has been almost wholly done away with, by requiring the officer in charge of each depot when issuing to bidders schedules of supplies to be purchased to send to the other depots copies of such schedules so that the officers receiving them can check thereon any of the articles enumerated therein which can be supplied from surplus stock and thus avoid the necessity for purchase of additional new supplies. By this system of interchange of information each depot is automatically informed of the status of every other depot in respect to quantities on hand of articles of supply in general use.

The methods of accounting for stock, segregating and caring for supplies, keeping account of issues, and in fact the entire system of administration of supply depots have been very materially improved and unusual delays in filling requisitions wholly eliminated. This has been accomplished without any increase in cost. In fact, the records show that there has been a perceptible reduction in cost of management and administration of all the supply depots in the way of reduction of working and clerical force, and the incidental expenses of transportation, drayage, etc.

The work of the large clothing depot at Philadelphia, Pa., has been greatly improved by the increased storage facilities made available there by the completion of a large new storehouse begun June 10, 1909, and by other minor improvements and extensions, which have rendered practicable the installation of the improved method of distributing clothing and equipage to the army and organized militia as referred to under the heading, "Clothing, camp and garrison equipage" in this report. The increased storage facilities at the Philadelphia depot have made practicable a corresponding increase in the facilities for manufacturing at that depot a larger quantity and variety of clothing and equipage than has heretofore been practicable, whenever conditions arise which for any reason render it advantageous to have such work done at the depot by purchase of material and hire of employees rather than by contract.

The practicability of having clothing and equipage made at the depot provides a wholesome check, not only against unreasonable prices for having work done under contract, but also against delinquent and dilatory contractors. It also affords additional means for meeting an extraordinary emergency.

Stock at supply depots.—Elimination of accumulations of old supplies at all the principal depots has opened the way to acquisition of a new stock of serviceable supplies calculated to meet current wants as far as can be anticipated. This has been accomplished almost entirely without necessity for special allotments to depots for additions to stock, supplies for current issues being obtained from credits accruing from previous issues to posts and stations, thus placing the depots in a situation similar to that of a large and active commercial establishment which aims to keep on hand a stock of supplies to meet the wants of the trade, by using funds accruing from sales for replenishment of and additions to stock.

The purpose kept in view has been to have at hand ready to issue as requisitions are received a stock of not less than six months, nor more than one year's requirements, as far as needs at each supply point can be anticipated and estimated from study of the record of the previous year's demands of such articles as are in general use.

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The discretionary authority given to chief quartermasters by paragraph 193, Circular 7, 1909, from this office in regard to the various methods for procuring supplies required by posts in their departments has, as far as can be learned from all available sources of information, been exercised with good judgment and proper regard for the interests of economy. In a revision of Circular 6, Quartermaster-General's office, 1909, the list of articles enumerated under class A supplies has been extended.

The encouraging measure of success attained in the operation and development of the general policy of decentralization in respect to methods of supply, and accounting in the Quartermaster's Department which went into effect on July 1, 1908, under authority of War Department General Order No. 18, January 24, 1908, is largely due to the energetic and efficient manner in which department commanders and chief quartermasters of departments and the majority of officers serving as post quartermasters, also clerks and other clerical employees, have cooperated with this office in its efforts to carry out in proper spirit the fundamental principles of the policy.

MISCELLANEOUS.

Personal bonds for detailed officers.—Attention is invited to the fact that captains of the line detailed to duty in the Quartermaster's Department are by existing law required, immediately upon assuming the duties of their position, to furnish a bond, involving them in a personal expense of from $10 to $13.50 per year. The service of an officer in the Quartermaster's Department by detail is obligatory on his part and considered a military duty placed upon him by order of superior military authority which he is required to obey as he would a detail or appointment to any other military duty. Under these circumstances it is not therefore considered to be quite fair that a captain of the line should be subjected to a personal expense for obeying an order assigning him to a purely military duty, which, even if he were personally so inclined, he could not avoid. There is, moreover, another inconsistency in the rule which requires a detailed officer in the Quartermaster's Department to furnish a bond on assuming the duties of his detail, while other line officers appointed to temporary duty as acting quartermasters are relieved from this obligation. There are a number of cases where captains or even lieutenants of the line are serving as post quartermasters at the same post with a detailed captain of the Quartermaster's Department as constructing quartermaster, where the money and property accountability of the former is far greater than that of the latter, but a bond is required of the latter only.

Instructions for post quartermaster-sergeants.—A course of instruction for these noncommissioned staff officers has been inaugurated at the Philadelphia general depot of the Quartermaster's Department, for instruction in their duties generally, and more particularly in fitting men with clothing and shoes, in the proper care of stores, clothing, equipage, and animals, in transportation matters, and business methods. Incidentally, the course will touch upon all or nearly all the duties falling to these noncommissioned officers at their stations, but with special emphasis to fitting clothing and shoes and their proper care, with a view to securing the greatest degree of com-

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fort for the wearers, and best possible service from the articles supplied.

The insufficient number of these noncommissioned officers hinders the department from giving them as complete a course and as thorough instruction therein as would be most advantageous. To accomplish even what is being undertaken necessitates considerable inconvenience through sending quartermaster-sergeants from stations where needed to the Philadelphia depot for instruction. The advantages in the end, however, are considered to outweigh the present inconvenience, and the course of instruction will be continued and developed.

Annual inspection of posts by chief quartermaster.—The continuation of the practice inaugurated in the fiscal year 1909, by which chief quartermasters of departments were authorized to make, during the early spring months of the present calendar year, a personal inspection of all matters pertaining to the Quartermaster's Department of each post in their respective departments, has been of much benefit to the service. It not only gives each chief quartermaster an opportunity to become personally familiar with the officers and personnel and local conditions at each post, but the resulting reports also furnish to this office much information of value relative to local conditions that would not be otherwise available.

Veterinarians for the Quartermaster's Department.—Great difficulty has been experienced in securing competent veterinarians for service in the Quartermaster's Department, at the compensation of $1,200 per annum fixed by law, without chance of promotion.

Veterinarians in the cavalry and field artillery receive on entrance into the service the pay of a second lieutenant ($1,700 per annum) with allowances of quarters, fuel, and light authorized by law to officers of that grade.

The entrance salary of veterinary inspectors, Bureau of Animal Industry, Department of Agriculture, is $1,400 per annum, with chances for promotion and increase.

Under these circumstances, it is not likely that men qualified by education, training, and experience to fulfill the duties of veterinarians for the Quartermaster's Department, which differ in no respect from those expected of veterinarians in the cavalry and field artillery service can be secured at the compensation allowed to them by law.

It is recommended that measures be taken to invite the attention of Congress to this anomaly, and that the law limiting the pay of veterinarians in the Quartermaster's Department to $1,200 per annum be modified.

CLERICAL FORCE.

The clerical work of the department has been kept up, but with the force available it has not been practicable to take up a number of contemplated improvements, the development of which can not be satisfactorily accomplished without a slight increase of the office force.

The need of additional office room is becoming more and more pressing, and statements contained in previous reports on this subject are pertinent to present conditions to a greater extent than ever before.

Plans for a change in the office record system more in accordance with the requirements of General Orders 92, War Department, 1909, have been worked out and will be put into operation at the beginning

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of the ensuing fiscal year, but want of adequate room for the operation of the system will detract from the full advantage to be derived from the change.

The need of some provision for superannuated clerks is more pressing than ever before in the history of the department. During the year it has again become necessary to demote a number of deserving clerks, for causes which can be stated only as worn-out in service. For the protection of the Government's interests it will be necessary to continue this action and even to take the final step of discharging those whose capacity for service has reached the point where their retention can be no longer justified and they will, unless some provision is made for them by legislative action, have to be set adrift under conditions which preclude every opportunity for obtaining remunerative employment elsewhere.

GENERAL REMARKS ON THE NECESSITY FOR AN INCREASE IN THE NUMBER OF OFFICERS AND OF POST QUARTERMASTER-SERGEANTS IN THE QUARTERMASTER'S DEPARTMENT AND THE ESTABLISHMENT OF A SERVICE CORPS.

This subject was very fully touched upon on pages 36 to 92 of the Quartermaster-General's annual report for the fiscal year ended June 30, 1909.

The experience and observation of the past fiscal year has furnished convincing proof of every argument then advanced in regard to the necessity for an increase in the number of officers and of post quartermaster-sergeants, and the material benefit that would result to the service at large by such increase.

The importance of the question at issue will, it is thought, justify a restatement of the salient points of the topic discussed in last year's report, with such additional suggestions as have a bearing upon the subject, based upon further study and examination of present conditions.

General purposes of the Quartermaster's Department.—Disbursements of funds pertaining to the Quartermaster's Department are on account of two general purposes, namely:

(*a*) Betterments, in which are included all new construction, extensions, and installations of systems, etc.; and

(*b*) Current requirements, which include all supplies and services necessary for the supply, maintenance, and transportation of the army.

The amount required for betterments depends on the extent and character thereof authorized by the Secretary of War; the amount for current requirements on the cost of the supplies and services furnished the army. The cost of the former, betterments, is, as a rule, determined by competition after advertisement, but proper and careful inspection of materials and supervision of the work is most necessary. The cost of the latter, current requirements, depends upon the quantity of supplies and extent of services required by the army, and these, in part, upon the method of purchase and inspection of supplies and procurement of services, but more especially on the care and issue of supplies and supervision of services. We must, therefore, look to reductions in supplies and services under current requirements for economy. While something has been done

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in this direction during the past fiscal year, it is submitted that an efficient administration, such as will result in real and permanent economy, can only be had by having—

I. Longer tours of duty of quartermasters of all grades at all posts and stations.

From data compiled in this office (see annual report of the Quartermaster-General for fiscal year 1909, page 44) it appears that the average period of service of officers on duty in the Quartermaster's Department from January 1, 1905, to June 30, 1909, four and one-half years, has been as follows:

United States:
- Chief quartermasters, 1 year, 7 months, 6 days.
- Assistants to chief quartermasters, 1 year, 4 months, 21 days.
- Depot quartermasters, 1 year, 5 months, 17½ days.
- Assistants to depot quartermasters, 1 year, 3 months, 28 1/15 days.
- Transport quartermasters, 10 months, 16⅔ days.
- Constructing quartermasters, 1 year, 29 days.
- Post quartermasters, 11 months, 15 days.

Philippine Islands:
- Chief quartermaster, 1 year, 1 month, 15 days.
- Assistant, 7 months, 21 days.
- Assistant in charge of water transportation, 10 months, 24 days.
- Assistant in charge of land transportation, 2 years, 3 months.
- Luzon, 10 months, 24 days.
- Mindanao, 1 year, 1 month, 15 days.
- Visayas, 1 year, 1 month, 15 days.

In this connection the following is quoted from the annual report of the Quartermaster-General for the fiscal year 1909:

Constructing quartermasters.—Changes at these offices were remarkably frequent. Of the 80 offices, at only 11 the officer in charge was not changed, 7 had 2 different officers, 16 posts 3 different officers, 7 posts 6 officers, 7 posts 7 officers, 4 posts 8 officers, and 1 post 9 officers. The changes within a year were equally demoralizing. At 20 posts the officers in charge served a year or more, at 27 posts the greatest number of changes in any year was two, at 11 posts three, at 2 posts four, and at 1 post five. * * * Fifty of the 80 constructing quartermasters' offices had work under way during the whole of this period. (Page 47.)

Post quartermasters.—Of the 116 posts only 2 had 1 officer during the entire period. One of these was San Juan, P. R., where the quartermaster is an officer of the Porto Rican Regiment, and the other is Schofield Barracks, Hawaii, only established April 20, 1909. Six posts had 2 different officers during the period, 13 had 3, 21 had 4, 27 had 5, 20 had 6, 13 had 7, 8 had 8, 2 had 9, 1 had 11, and 3 had 12. At 25 posts the quartermasters served one year or more, at 49 the greatest number of changes in any year was two, at 21 posts three, at 3 posts four, and at 1 post five. (Page 48.)

II. Experienced officers as quartermasters at all military posts, depots, and other stations.

From the tables on pages 46 and 47 of the report for the fiscal year 1909, it will be observed that on January 1, 1905, there were 5 first lieutenants and 3 second lieutenants on duty as constructing quartermasters, and 25 first lieutenants and 40 second lieutenants on duty as post quartermasters; and that on July 15, 1909, there were 16 first lieutenants and 10 second lieutenants on duty as constructing quartermasters, and 51 first lieutenants and 27 second lieutenants on duty as post quartermasters.

In this connection attention is invited to the remarks on page 49 of the report for the fiscal year 1909, viz:

The result is that the disbursement of considerable sums of the appropriations of this department, the accountability for supplies and stores of great value, the care of valuable buildings and improvements, and the responsibility for initiating and carrying out administrative work of importance devolves upon young officers of little

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experience. * * * These young officers are, with few exceptions, zealous and energetic, but lack experience, and experience is of first importance among the qualifications of a quartermaster.

III. Sufficient number of officers to properly and efficiently perform all duties of the Quartermaster's Department.

From the table on pages 39 and 40 of the annual report for the fiscal year 1909 it will be seen that on June 30, 1909, there were 190 officers on duty in the Quartermaster's Department—96 officers of the regular establishment and 94 officers of the line.

As will be seen elsewhere in this report, on June 30, 1910, there were 196 officers on duty in the Quartermaster's Department—96 officers of the regular establishment and 100 officers of the line.

Notwithstanding the fact that the number of line officers on duty in the department on June 30, 1910, was an increase of six over the number in the department on June 30, 1909, there was a shortage of officers necessary to properly perform the duties of the department.

The reasons for an increased number of officers in the Quartermaster's Department, and the duties for which additional officers are required, are fully set forth in the report for the fiscal year 1909 (pages 60 to 71), to which attention is respectfully invited.

To meet the requirements of I, II, III would necessitate an increase in the number of officers of the Quartermaster's Department, and if this increase be as recommended in the annual report for the fiscal year 1909 (pages 50 to 91), the maximum cost per year, including maximum pay, commutation of quarters, heat, light, forage, and horse equipments, is estimated at $420,000.

IV. A sufficient number of properly instructed post quartermaster-sergeants.

In this connection it is desired to reiterate the remarks made in the annual report for the fiscal year 1908 with reference to increasing the number of post quartermaster-sergeants by 50, viz:

These noncommissioned staff officers are an important factor in the operations of the Quartermaster's Department. Wherever there are stores of quartermaster supplies to be kept and issued, the services of one or more of these sergeants are needed. This means practically all permanent military posts and stations and many times at temporary ones. In field service the quartermaster of each division and brigade should have at his command such number of these sergeants as is required to act as storekeepers and assist in issuing supplies. Each general depot should have such number of them as can be used to advantage as storekeepers and in the distribution of supplies, generally from three to five. The present force is so occupied with other duties that but two are stationed at quartermaster depots. * * *

There would be no increase of expense on account of an increase of the number of post quartermaster-sergeants recommended, as they would generally replace civilian employees now costing the Government more money than would the sergeants. The advantage would be in having men amenable to military discipline, already experienced in military methods and customs, and of ascertained integrity and ability is the result desired.

As stated elsewhere in this report, a course of instruction for post quartermaster-sergeants has been prescribed at the Philadelphia depot, but because of the insufficient number of these noncommissioned staff officers it has not been practicable to send more than four there at one time. If the number of post quartermaster-sergeants be increased by 50, as previously recommended, it would be possible to replace a like number of civilian clerks and storekeepers and to send a greater number of sergeants to the Philadelphia depot for instruction, which would result in the department having well instructed and

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efficient post quartermaster-sergeants at all depots, posts, and stations, which is not possible with the present number.

The estimated cost of this increase, including maximum pay, subsistence, clothing, heat, and light, is $45,148 per year.

V. Certain civilian employees and all enlisted men on extra duty replaced by enlisted men of a service corps.

The establishment of a service corps has been repeatedly recommended by the Quartermaster-General, department commanders, and favorably reported upon by the General Staff.

It is thought an efficient service corps can be organized and competent clerks, mechanics, etc., recruited under the following designations and rates of pay per month, first enlistment:

Master electrician, for duty at posts where lighting plants are operated and owned by the United States: Same rate of pay as master electrician, Coast Artillery Corps..... $75

First-class electrician sergeants, for duty in charge of small plants and at posts where current is purchased and as assistants to master electricians: Same designation and rate of pay for first-class electrician sergeants, Coast Artillery Corps. 45

Mechanics: Engineers, plumbers, wheelwrights, carpenters, tinners, blacksmiths, farriers, painters, saddlers, harness makers..... 45

Same rate of pay as first-class sergeants, Signal Corps, and first-class electrician sergeants Coast Artillery Corps.

Sergeants, first class: Clerks, teachers, forage masters, superintendents of transportation..... 45

Same rate as sergeants, first class, Signal Corps, and first-class electrician sergeants, Coast Artillery Corps.

Sergeants, second class: Train masters, wagon masters, overseers, pack masters, foremen, clerks, checkers..... 36

Same as sergeants, Ordnance, Engineers, and Signal corps.

Corporals: Assistant wagon masters, cargadores, printers, clerks, range riders..... 24

Same as corporals of Engineers, Ordnance, and Signal corps.

Privates, first class: Teamsters, packers, hostlers, stablemen, storekeepers, scavengers, caretakers, warehousemen, gardeners..... 18

Same as privates, first class, Ordnance, Engineers, and Signal corps.

Privates, second class: Laborers, watchmen, messengers, janitors..... 15

Same as private of the line.

Cooks: Same as now authorized..... 30

Firemen: Same as Coast Artillery Corps..... 30

COST OF SERVICE CORPS AS COMPARED WITH COST OF CIVILIANS AND ENLISTED MEN ON EXTRA DUTY.

United States.—There are now employed at military posts, general recruiting depots, and remount depots (employees at quartermaster depots, offices of chief quartermasters and constructing quartermasters, transport service, and harbor-boat service not included) 2,449 civilian employees at a yearly cost, including pay and allowances, of $1,769,767.55, whom, it is submitted, can be replaced by 2,400 service corps men at an estimated yearly cost, including pay at rates suggested above, subsistence, clothing, heat, and light, of $1,008,380.08.

In addition to the civilian employees above referred to there are 1,725 enlisted men employed on extra duty at a yearly cost of $214,600, whom, it is submitted, can be replaced by 1,100 service corps men at an estimated yearly cost, including pay at above rates, subsistence, clothing, heat, and light, of $493,121.

Philippine Islands.—There are now employed at military posts, chief quartermasters' offices, depot quartermasters' offices, and constructing quartermaster's office (employees of the transport service and harbor-boat service not included) 1,564 civilian employees, at a yearly cost, including pay, increase thereof for foreign service, and allow-

ances, of $1,353,726.25, whom, it is submitted, can be replaced by 1,500 service corps men at an estimated yearly cost, including pay at rates suggested above, with 20 per cent increase for foreign service, subsistence, clothing, heat, and light, of $809,321.64.

VI. More thorough inspection of supplies delivered and of construction and repairs.

VII. Proper care and use of supplies and intelligent and careful supervision of issues and of employees and other services.

These would follow when the objects sought under I, II, III, IV, and V have been accomplished, and the increased efficiency resulting therefrom would, it is submitted, compared with the cost for fiscal year 1910, insure a reduction in expenditures under these items of approximately $750,000 for the United States and $250,000 for the Philippine Islands.

Attention is invited to the following recapitulation of the foregoing:

UNITED STATES.

Paragraph.	Purpose.	Dr.	Cr.
III	To increase for one year in officers of the Quartermaster's Department from 96 to 185, as recommended on page 50, Annual Report of the Quartermaster-General for 1909	$420,000.00	
IV	To increase in quartermaster-sergeants, for one year, from 200 to 250, as recommended on page 50, Annual Report of the Quartermaster-General for 1909	45,148.00	
V	By cost of 2,449 civilian employees for one year, to be replaced by quartermaster-sergeants and service corps men		$1,769,767.55
V	To cost of 2,400 service corps men for one year, to replace civilian employees	1,008,380.08	
V	By cost of extra-duty pay for 1,725 enlisted men on extra duty, for one year, to be replaced by service corps men		214,600.00
V	To cost of 1,100 service corps men for one year to replace enlisted men on extra duty	493,121.00	
VI, VII	By estimated reductions for one year in expenditures (savings) as compared with cost for fiscal year 1910, due to increased efficiency		750,000.00
		1,966,649.08	2,734,367.55 1,966,649.08
	Net reduction as compared with cost for fiscal year 1910		767,718.47

PHILIPPINE ISLANDS.

V	By cost of 1,564 civilian employees for one year, to be replaced by quartermaster-sergeants and service corps men		$1,353,726.25
V	To cost of 1,500 service corps men for one year, to replace civilian employees	$809,321.64	
VI, VII	By estimated reductions in expenditures (savings) as compared with cost for fiscal year 1910, due to increased efficiency		250,000.00
		809,321.64	1,603,726.25 809,321.64
	Net reduction as compared with cost for fiscal year 1910		794,404.61

UNITED STATES AND PHILIPPINE ISLANDS.

	United States	$1,966,649.08	$2,734,367.55
	Philippine Islands	809,321.64	1,603,726.25
		2,775,970.72	4,338,093.80 2,775,970.72
	Net reduction as compared with cost for fiscal year 1910		1,562,123.08

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Assuming that 75 per cent of the enlisted men of the service corps would reenlist for a second term of service, 50 per cent for a third term, and 40 per cent thereafter, it is submitted that interest at 2½ per cent per annum on the initial savings ($1,562,123.08) and annual savings thereafter in cost of operating force and of maintenance would more than cover the additional cost due to the increase in pay of service corps men upon reenlistment at the rates now fixed by law for rank and grades corresponding to those suggested for a service corps on page 60 of this report.

Respectfully submitted.

J. B. ALESHIRE,
Quartermaster-General, U. S. A.

The SECRETARY OF WAR.

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REPORT OF THE COMMISSARY-GENERAL.

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REPORT OF THE COMMISSARY-GENERAL.

WAR DEPARTMENT,
OFFICE OF THE COMMISSARY-GENERAL,
Washington, D. C., September 26, 1910.

SIR: I have the honor to submit the following report of the operations of the Subsistence Department for the fiscal year ending June 30, 1910:

RESOURCES, DISBURSEMENTS, AND BALANCES.

The following statement exhibits the aggregate fiscal resources and disbursements of the department and the balances at the close of the fiscal year 1910:

REPORT OF FINANCIAL TRANSACTIONS OF THE SUBSISTENCE DEPARTMENT DURING THE FISCAL YEAR ENDING JUNE 30, 1910.

Appropriation, subsistence of the army, 1910.

[Act of Mar. 3, 1909, 35 Stats., 740.]

Resources:	
Appropriation	$7,786,588.29
Receipts	3,385,622.29
Deficiency appropriation (act Feb. 25, 1910, 36 Stats., 210)	1,250,000.00
	12,422,210.58
Disbursements	12,052,631.54
Balance	369,579.04
	12,422,210.58

RECEIPTS.

Sales to officers and enlisted men	2,669,213.18
Sales to civilian employees	243,076.33
Sales to officers and enlisted men, organized militia	10,301.34
Sales to bureaus and departments of the Government	192,777.99
Sales, miscellaneous	36,410.38
Collections, account errors, gains, reclamation, refundment, transportation	29,241.12
Meals on transports	121,142.01
Transfer settlements made by Treasury Department, account supplies furnished various bureaus and departments of the Government	76,970.69
Miscellaneous deposits made to credit of appropriation, account paymasters' collections, etc	6,489.25
	3,385,622.29

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DISBURSEMENTS.

Ration articles, including savings and other authorized issue articles purchased	$8,626,760.67
Stewards' stores	201,496.21
Hot coffee for troops traveling	6,222.28
Meals for recruiting parties, etc	160,196.19
Sales stores	1,693,151.11
Post ovens and cooking apparatus	52,818.60
Field ranges	6,310.84
Subsistence property	69,172.35
Commutation of rations to cadets, West Point	43,392.60
Expended for cadets, West Point, while attending inaugural ceremony	760.00
Commutation of rations to enlisted men	607,578.80
Compensation to civilian employees, Subsistence Department	249,467.86
Compensation to civilian employees, transport service, and board wages	190,462.42
Extra-duty pay to enlisted men detailed on duty in the Subsistence Department, and as instructor cooks at the schools for bakers and cooks, and as cooks and mess stewards at recruit depots	48,090.68
Prizes to enlisted graduates of the army schools for bakers and cooks	660.00
Incidental expenses	90,373.74
Correction of errors, and transportation turned over to Quartermaster's Department	3,023.04
Transfer settlements made by Treasury Department, account of supplies received from various departments of the Government	2,694.15
	12,052,631.54

BALANCES.

Amount in Treasury to credit of Subsistence Department, June 30, 1910	35,310.15
Amounts to credit of officers in depositaries and in personal possession, June 30, 1910	334,268.89
Total	369,579.04

Appropriation, subsistence of the army, 1909.

[Act May 11, 1908, 35 Stats., 115.]

Resources:	
Balance reported June 30, 1909	$161,820.99
Receipts	43,563.54
Deficiency appropriation (act Feb. 25, 1910, 36 Stats., 210)	290,490.00
	495,874.53
Disbursements	405,705.85
Balance	90,168.68
	495,874.53

RECEIPTS.

Collections, account errors, reclamation, transportation	931.13
Meals on transports	5,116.47
Transfer settlements made by Treasury Department, account supplies furnished various bureaus and departments of the Government	30,062.76
Miscellaneous deposits made to credit of appropriation, account paymasters' collections, etc	6,811.35
Gains	641.83
	43,563.54

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DISBURSEMENTS.

Ration articles, including savings and other authorized issue articles purchased	$314,900.74
Hot coffee for troops traveling	9.61
Meals for recruiting parties, etc	2,025.07
Sales stores	44,680.03
Post ovens and cooking apparatus	574.15
Subsistence property	41.00
Commutation of rations to cadets at West Point	4,140.90
Commutation of rations to enlisted men	11,419.53
Compensation to civilian employees, Subsistence Department	590.22
Recruit depots (cooks at 50 cents per day)	98.00
Incidental expenses	4,340.14
Correction of errors and transportation turned over to the Quartermaster's Department	919.62
Transfer settlements made by Treasury Department, account of supplies received from various departments of the Government, etc	21,966.84
	405,705.85

BALANCES.

Amount in Treasury to credit of Subsistence Department, June 30, 1910	89,868.27
Amount to credit of officers in depositaries and in personal possession, June 30, 1910	300.41
	90,168.68

Appropriation, subsistence of the army, 1908.

[Act Mar. 2, 1907, 34 Stats., 1165.]

Resources:	
Balance reported June 30, 1909	$251,440.57
Receipts	1,168.72
	252,609.29
Disbursements	1,231.06
Amount carried to surplus fund by Treasury Department, June 30, 1910	251,378.23
	252,609.29

RECEIPTS.

Transfer settlements made by Treasury Department, account supplies furnished various bureaus and departments of the Government	414.76
Miscellaneous deposits made to credit of appropriation, account of paymasters' collections, etc	736.16
Collections account errors, reclamation	17.80
	1,168.72

DISBURSEMENTS.

Correction of errors	338.85
Settlements made by Treasury Department	892.21
	1,231.06

Appropriation, encampment and maneuvers, organized militia, 1910–1912.

[Act Mar. 23, 1910, 36 Stats., 251.]

Resources:	
Allotment of appropriation made by Secretary of War	$107,735.00

BALANCE.

Amount in Treasury to credit of Subsistence Department, June 30, 1910	107,735.00

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Appropriation, encampment and maneuvers, organized militia, 1909–1911.

[Act Mar. 3, 1909, 35 Stats., 740.]

Resources:	
Allotment of appropriation made by Secretary of War	$30,501.96
Disbursements:	
Transfer settlements made by Treasury Department	17,106.47
Balance	13,395.49
	30,501.96

BALANCE.

Amount in Treasury to credit of Subsistence Department, June 30, 1910	13,395.49

Appropriation, encampment and maneuvers, organized militia, no year.

[Act May 11, 1908, 35 Stats., 115.]

Resources:	
Balance reported June 30, 1909	$18,544.90
Allotment of appropriation made by Secretary of War	698.62
	19,243.52
Disbursed	11,837.29
Balance	7,406.23
	19,243.52

DISBURSED.

Hot coffee for troops traveling	165.90
Transfer settlements made by Treasury Department	11,671.39
	11,837.29

BALANCES.

Amount to credit of Subsistence Department, June 30, 1910	7,322.13
Amount to credit of officers in depositaries and in personal possession, June 30, 1910	84.10
	7,406.23

Appropriation, encampment and maneuvers, organized militia, 1908.

[Act Mar. 2, 1907, 34 Stats., 1164.]

Resources:	
Balance reported June 30, 1909	$21,718.80
Disbursements:	
Amount carried to unallotted fund by Treasury Department, July 26, 1909	21,718.80

THE UNITED STATES ARMY TRANSPORT SERVICE.

DEBITS.

Salaries of civilian employees and board wages (including employees of office of subsistence superintendent in work pertaining to the transport service)	$190,462.42
Cost of food furnished in the several messes	468,172.19
Commutation of rations to patients in hospital	5,829.10
Value of ice dropped as wastage	7,673.51
Losses on stores due to deterioration	352.55
Losses on property	133.76
Value of property expended	1,141.49
	673,765.02

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CREDITS.

Cash collections for meals	$92,668.67
Amounts paid and collectible on account of meals furnished bureaus and other departments of the Government	43,922.37
Miscellaneous sales, correction of errors, etc	1,885.67
Gains in stores	657.81
Credit given for value of issues to troops, civilian employees, and general prisoners	134,957.57
	274,092.09

SUMMATION.

Total debits	673,765.02
Total credits	274,092.09
Net cost	399,672.93

STATEMENT OF ISSUES MADE DURING FISCAL YEAR 1910.

Garrison, field, travel, haversack, and trail rations (27,535,037), average cost, 21.441626 cents	$5,903,959.75
Filipino rations (2,225,801), average cost, 13.461166 cents	299,618.80
Emergency rations (7,150)	2,505.05
Articles other than ration articles issued	104,835.05
Ice issued	50,720.62
Recruit kits issued	22,277.66
Gratuitous issues to destitutes, etc	1,123.76
Reimbursement issues	4,140.66
Issues to Indian prisoners of war	12,953.51
Total value of issues	6,402,134.86

Number, value, and average cost of rations, by geographical divisions, etc., issued during the fiscal year 1910.

Division.	Number of rations.	Value.	Average cost (cents).
United States	21,304,884	$4,401,961.70	20.66
Alaska	394,423	152,990.60	38.79
Hawaii	408,358	100,932.87	24.72
Porto Rico	222,156	59,002.21	26.56
Transports	586,476	133,916.79	22.83
Philippines (American)	4,618,740	1,055,155.58	22.85
Total and average cost (American)	27,535,037	5,903,959.75	21.44
Philippines (native)	2,225,801	299,618.80	13.46

Losses.

DEBITS.

Ordinary wastage and losses in issue and transportation	$25,551.80
Deterioration of stores from climatic causes, etc	28,578.19
Theft	40.90
Fire	139.08
Property expended and worn out in the government service	73,654.80
Total debits	127,964.77

CREDITS.

Reclamations made from carriers and contractors	$14,073.15	
Receipts from sales at auction of deteriorated supplies	2,828.94	
Gains on stores (account issues)	14,741.75	
Gains on property	764.41	
Total credits		32,408.25
Net losses		95,556.52

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The losses above referred to occurred in geographical divisions, as follows:

United States	$68,596.65
Philippine Islands	50,085.76
Alaska	5,645.88
Transports	1,627.54
Hawaii	1,400.52
Porto Rico	608.42
Total	127,964.77

It may be noted in connection with the subject of losses that the value of ice used for the preservation of stores amounted to $35,550.87, although this expenditure is not strictly an item of loss.

Where supply points are distant from places of consumption, as in the case of the Philippines and Alaska, it is necessary, in order to prevent shortage and inconvenience, to carry an adequate stock, and in consequence the difficulties of transportation and trying climatic conditions tend to increase losses. It is difficult to estimate the exact needs of troops, and at times there is an oversupply and losses occur, notwithstanding the utmost care and the reduction of requisition periods to the shortest possible time consistent with safety.

The addition of perishable articles like chicken, turkey, lard, butter, and sirup to the new ration, and the necessity of providing and also carrying quantities of these perishable articles on hand, increase losses, but it is thought the advantages derived more than compensate for such losses.

POST COMMISSARY-SERGEANTS.

The number of post commissary-sergeants in the service during the fiscal year was, as follows:

In service July 1, 1909		200
Appointed during the year		26
Total		226
Separations:		
Retired	18	
Died	1	
Deserted	1	
Discharged	2	
		22
In service on June 30, 1910		204

This number includes the four post commissary-sergeants on duty with bakers and cooks school detachments—two at Fort Riley, one at the Presidio of San Francisco, Cal., and one at Washington Barracks, D. C.

PHILIPPINES DIVISION.

The bulk of the supplies for the division was received from the United States, the purchasing points being divided between New York, Chicago, St. Louis, Kansas City, Omaha, and San Francisco. The point of supply of some articles previously obtained in the Philippines was changed to the United States to secure a more satisfactory quality and also with a view of eliminating the cost of customs duty. The points of supply of six articles were transferred from the United States to the Philippines with satisfactory results. The quantity of the stores furnished was ample and the quality excellent. No

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complaints were received except as to the quality of one lot of tobacco. The experiment of substituting sugar-cured ham for dry salt-cured ham has given universal satisfaction, and when the present stock of the dry salt-cured ham is exhausted the special sugar-cured product will be supplied.

The provisions of "An act to raise revenue for the Philippine Islands, and for other purposes" require the Subsistence Department to pay customs duty for articles supplied the troops, a list of some of the dutiable articles, together with the rate of duty paid, being furnished below:

Article.	Cents per pound.	Article.	Cents per pound.
Beef	0.4535	Nutmegs, whole	2.2679
Mutton	.4535	Butter	2.7215
Rice, husked	.4535	Chocolate, plain	6.8039
Coffee, roasted	3.1751	Chocolate, vanilla	6.8039
Tea	6.8039	Cocoa, ground	5.6699
Sugar	1.9141	Coffee, ground	4.0823
Pepper, black, ground	3.6287	Currants, dried	1.1339
Cinnamon, ground	4.5359	Tapioca	1.1339
Cloves, ground	4.5359	Gelatin, 25 per cent	.....
Ginger, ground	4.5359	Sardines, 15 per cent	.....

The total amount of customs duty and internal-revenue taxes for eight months of the fiscal year amounted to $48,563.98.

Frozen fresh beef, of hind quarters only, and mutton were supplied from Australia under annual contract. Deliveries were made monthly at the Insular Cold Storage Plant at Manila, and the quality of the meat was universally good. The prices were 8.1 cents per pound for beef and 7 cents per pound for mutton, as compared to the prices of last year, which were 7.88 cents per pound for frozen beef and 7 cents per pound for mutton. Experiment was made with frozen beef that had been in cold storage for considerable periods, and for the purpose a number of quarters of the regular beef received under contract from Australia were put aside for test, properly marked, on April 20, 1908. One quarter was withdrawn and examined April 20, 1909, and found to be in excellent condition. A second quarter was withdrawn on May 31, 1910, after a period of over two years had elapsed, and samples turned over to the Medical Department of the Army and to the Insular Bureau of Science for bacteriological and chemical examination and feeding tests, with the following results:

The Medical Department of the Army reported that the beef had none of the bacteria present in meat poisoning; that the cooked meat (steak), while lacking in aroma, had a good flavor and compared very favorably with freshly frozen beef; also that about the only gross evidence of long storage were slight discolorations in the fasciæ and a general loss of water.

Report of the Bureau of Science on chemical analysis:

	Two-year-old beef.	Beef lately received.
Water	71.94	73.13
Protein	22.46	22.44
Fat	5.04	2.56
Ash	1.00	1.12

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This experiment is of interest to the army in the Philippines in that it demonstrates that fresh beef, under stress of circumstances, may be kept in good condition for two years or longer, provided a low and uniform temperature is maintained in the chamber in which it is stored.

FRESH VEGETABLES.

Fresh potatoes and onions were contracted for as in the past, the product being secured, according to season, from Japan, Siberia, Australia, and India. The quality was good and the losses were, by rigid method of inspection, materially reduced. The price of potatoes was $2.18 per hundred pounds and that for onions was $2.40 per hundred pounds as compared with the prices of potatoes last year, which ranged from $2.10 to $2.40 per hundred pounds, and price of onions $1.80 to $2.45 per hundred pounds.

POTATO FARM.

The first crop of potatoes planted on the experimental farm of the Subsistence Department last year at Camp Vicars, P. I., was not as successful as was expected, but the potatoes raised were of excellent quality and flavor and kept well. Among the principal causes for the unsatisfactory results obtained were the unsuitability of the seed potatoes to the ground, and the soil itself was poor on account of the constant raising of rice (which requires the same constituents for its growth as potatoes do, both being starchy, and needing fertilization), and the cogan and tule grass roots choked and poisoned the potatoes, making it necessary to get rid of the roots.

This was the first experiment, and conditions were not thoroughly understood; and it was not known that a crop of velvet beans and mongos was essential to first "sweeten" the ground. All the cleared ground is now planted in beans and mongos.

The first planting of potatoes will be early in the fall, between which time and the end of December it is hoped to plant the entire 108 acres, in different periods, 20 acres to the period. The experiment has reached a point now where there is no longer any doubt in the minds of those who are acquainted with what has been accomplished that potatoes can be grown successfully in large quantities. This will solve a most difficult problem of supply, and will largely reduce the cost of vegetables to the Government.

The commanding general of the division considered the enterprise of the Subsistence Department of raising potatoes for the troops in the division had so far succeeded as to warrant measures to place the farm on a more permanent basis, and with a view to avoid delays and interruption placed it directly under the control of the chief commissary of the division, with Lieut. J. M. Walling, Third Infantry, in charge of the work as superintendent, who is to be in command of the detachment, responsible for the equipment, animals, and buildings, as well as the work.

He has also directed that a survey be made of such land in the vicinity of and including the present farm, approximately 1,000 acres, as may be selected by the superintendent of the farm, with the intention of setting it aside for the use of the Subsistence Depart-

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ment; and has also given instruction about the transportation of supplies and the erection of buildings in connection with the farm.

The Quartermaster's Department and the Insular Bureau are cordially cooperating with the chief commissary of the division in the undertaking, and much credit is due Prof. Charles M. Conner, of the agricultural department of the Philippines; Capt. F. H. Lawton, commissary; and Lieut. J. M. Walling, Third Infantry (directly in charge of the farm), in connection with the experiment.

RAISING BEEF CATTLE IN THE PHILIPPINES.

Suggestion has been made that experiment be tried with raising beef cattle in the Department of Mindanao (owing to favorable conditions existing there) for the use of the troops serving in the islands, but after careful consideration of the subject it is not deemed advisable to make a trial, for the following reasons:

To supply the troops in these islands with fresh beef from cattle owned by the Government would necessitate stocking the ranges, the construction of ranches, slaughterhouses, a modern cold-storage plant, offices, quarters for employees, tracks and cars for loading and handling the meat, both in the green and frozen state, and the purchase of hundreds of articles of equipment required in an up-to-date slaughtering and freezing plant. Many of the cattle and horses would have to be brought from Australia, India, and the United States, the material for building from the United States, and the equipment from the United States or Europe. The animals and material would have to be transported for great distances and at enormous cost; add to this the expense of installing and equipping a modern plant in a remote locality, and the total amount involved would be so large as to be prohibitive. The cost of maintenance of such a plant would be very great, to say nothing of the loss of animals through epidemics and by the predatory Moros.

The present force in the Philippines use approximately 8,000,000 pounds of frozen beef and mutton per year, at a cost of about 8½ cents per pound for beef and 6½ cents for mutton, which includes transportation and duties. This meat is transported from Australia in refrigerator ships, the contractors assuming all risks; it is transferred to the insular cold-storage plant, and is later distributed throughout the islands in our own vessels at a minimum of cost. The system is as nearly perfect as it is possible to make it; there is practically no loss; the method of handling is cleanly, each quarter being inclosed in a muslin slip and an outer covering of burlap.

COLD STORAGE AND ICE AT MANILA.

Cold-storage space has been rented and ice furnished at Manila as heretofore, from the insular government, and at the same rates.

Every effort has been made to reduce the amount of space required for use of the Subsistence Department and to obtain a reduction of the rate charged for same, and also to secure a reduction of the price paid for ice. A revision of the contract for space in the cold-storage plant has been made for the fiscal year 1911, which, it is expected, will result in a considerable saving to the Government. For several years

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past the Subsistence Department has occupied five rooms in the insular cold-storage plant for the storage of fresh beef, certain perishable stores, and the butcher shop. These rooms were necessary in order to maintain the proper reserve of fresh beef for use in the division, but owing to frequent delays in arrival of cargoes of beef there were occasions when considerable space in these rooms was unoccupied. Under the new arrangement only two rooms, Nos. 4 and 5, will be retained permanently by the Subsistence Department, and the additional space required will be rented from the insular cold-storage plant as needed, a balance being struck each day, so that payment will be made for only the actual cubical space occupied.

The new system of storing frozen meats has worked out very satisfactorily, and based on the savings for the first month of the new year there should be a total saving to the Government of $10,000 during the present fiscal year.

Upon it being shown that the army was paying an excessive price for its ice, and that the same rate was charged the army for wholesale quantities as was charged the individual for the small quantity consumed in his household, the contract for furnishing ice to the army for the fiscal year 1911 provided for a reduction of 25 per cent from the last contract price.

THE NEW ARMY RATION.

At the time of the last annual report the new ration, established by executive order of March 5, 1908, had not been on trial long enough to give a well-considered opinion concerning it. Since that time, however, many reports have been received from various sources, and especially through chief commissaries, and with few exceptions the ration is considered fully adequate in quantity and quality. Among the reports the following may be noted:

The chief commissary, Department of Texas:

> No complaints have been received of the quality or insufficiency of the ration. It seems ample and suitable in all respects.

The commanding general, Department of Luzon, at Fort McKinley, P. I.:

> For myself I consider the present garrison ration ample and satisfactory, and if properly and economically administered leaves little or nothing to be desired. Most of the complainants seem to forget that the authorized and actual savings in many of the components of the ration provide ample means for the supply of such special articles as the individual tastes of their organizations call for. In my opinion the soldiers of the Army of the United States have nothing to complain of in the rations furnished them.

The chief commissary, Department of Luzon:

> From a careful study of all of these reports I am of the opinion that the ration as now issued is both adequate and suitable. It might be advisable to reduce the ration of lard, sirup, spices, and extracts, and increase the ration of milk and butter accordingly; this could be done without increasing the cost of the ration. It is believed that with due business foresight and economy no one could find any cause to complain of the ration. It is elastic, ample, and the articles supplied are of good quality. Whereas a number of the reports state that the milk and butter components are insufficient, yet large savings are made on the main articles of the ration, and such insufficiency can be made good from this source.

The chief commissary, Department of the Gulf:

> The ration as furnished during the year was a satisfactory one.

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The chief commisary, Department of the Columbia:

The savings made during the year indicate, as in the preceding year, that the expensive items of spices, lard, sirup, and flavoring extract were used in money value in enlarging the company fund to a much greater extent than are other components, and I recommend that they be discontinued furnished, except as sales articles.

The chief commissary, Department of the East:

From the testimony received, as well as experience of two years past, it is believed that with a substantial reduction of the money value of the components sirup, lard, spices, and flavoring extracts, and corresponding increase of the value of butter, milk, and sugar components, the present ration as established would be as nearly of universal satisfaction as the same amount of money could provide.

It seems difficult for many to understand that when a saving is allowed on every component of the ration it practically allows for the consumption of as much of each component as may be desired and the use of the money value of the remainder of that component according to the tastes or views of those in the mess. In other words, that every facility for securing a varied diet is provided.

The recommendations that certain components of the ration be discontinued and the allowance of other components be increased is, as shown above, when savings are allowed on all components, unnecessary. The reason why these various components were included in the ration was to establish such an allowance of various food articles as would enable an inexperienced officer of militia or others, by making use of the straight ration, to give a fairly varied diet to his organization, and yet permit an experienced officer to effect a still greater variety by taking advantage of the savings provision.

From the standpoint of the men there is no reason why the recommendation that certain components should be omitted and the money value thereof be compensated by increasing the allowance of others should be approved, when taken into consideration with the greater advantages to be obtained by prescribing a ration which the inexperienced would find to produce fairly satisfactory results; but from the standpoint of the Government, however, the greater the number of components that are included in the ration the greater must be the number of articles carried on hand, and therefore the probability of increased losses; but it is thought that with due consideration of the interests of the men the Government might well afford to incur the possibility of increased losses, especially when it is taken into consideration that the total losses of the department are so infinitesimally small when the value of all the stores handled by it are considered, and also the greater contentment and comfort which may possibly be secured by having these articles on hand.

HAVERSACK RATION.

A satisfactory container for the bacon portion of this ration has been found. It consists of a can stamped out of one piece of tin and with a top of tagger tin which can be cut with a penknife. The can has rounded corners and is 7 inches long, 3½ inches wide, and 1½ inches deep. It may be noted in this connection that experiments have been tried with a 1-pound can of corned beef for the meat portion of such ration. It is also expected that shortly a satisfactory form for the coffee portion of the ration will be obtained. The prin-

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cipal difficulty encountered has been that the coffee intended for such purpose lost strength, it was thought, in the process of compression, but later results along this line have been more encouraging. To aid in the solution of the matter, a supply of the ration was sent to the various camps of instruction for experiment during the maneuvers, where it was tested under field conditions; and upon receipt of reports the question as to the best form for the meat and coffee elements of the ration can be finally determined. With the meat and coffee portions satisfactorily settled, the haversack ration can be put up in a convenient form in large numbers and kept on hand in case of war, and readily issued out to the men. This would meet the subsistence requirements of the troops serving under war conditions or in the field when transportation is limited, a result it is most earnestly desired to accomplish.

FILIPINO RATION.

With the aim of improving the Filipino ration, and making it conform more nearly to the diet of the native Filipino, the rice component of the ration has been reduced and the potato portion eliminated; and native products, such as camotes, mongos, and ginger root added, so that the ration in its present form is as follows:

Component articles and quantities.		Substitutive articles and quantities.	
Beef, fresh	12 ounces	Bacon	8 ounces.
		Canned meat	Do.
		Fish, canned	12 ounces.
		Fish, fresh	Do.
Flour	8 ounces	Hard bread	8 ounces.
Baking powder, when in field and ovens are not available.	0.32 ounce		
Rice, Filipino, No. 2	16 ounces	Rice, Saigon (when Filipino No. 2 can not be obtained).	16 ounces.
Camotes	8 ounces		
Mongos	4 ounces		
Coffee, roasted and ground	0.5 ounce		
Ginger root	do		
Sugar	2 ounces		
Vinegar	0.08 gill		
Salt	0.64 ounce		
Pepper, black	0.02 ounce		

After a practical trial of this ration it has been ascertained that the camotes, mongos, and ginger root are not produced in sufficient quantities in the Philippine Islands to provide an adequate supply, and foreign markets have to be resorted to to procure the deficiency. The change from polished rice to unpolished was made as the board for the study of tropical diseases definitely decided that the use of the former was the cause of beri-beri. It has developed that much of the Filipino No. 2 rice is polished, and therefore does not contain the salts the supply of which is needed to prevent beriberi.

EMERGENCY RATION.

Experiments are now being made with an emergency ration whose nutritive value is sufficient to sustain the soldier for twenty-four hours. It may be eaten dry, or mixed with water and used as a beverage; and it is palatable when moistened and mixed with hard bread.

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It is believed that this ration will meet all requirements which the very best authorities have stated as being necessary for such a ration. The ration will be reasonable in price, keep for many years, which adds to its value in maintaining a reserve stock, and can be obtained in unlimited quantities on short notice. It has the advantage of being not only a mixture of the most soluble food elements, but is compressed into a palatable form and one which will require no special plant to manufacture, which was an insuperable objection to the previous forms of the emergency ration.

Results have shown that there is no question of the nutritive value of this experimental ration, and if trials which are now being made to test its keeping qualities are satisfactory the ration will be recommended for adoption. Some of the rations which were sent to the Philippines early in 1909 for testing were opened there on January 3, 1910, and were found to be in a most excellent state of preservation. There were no appearances of mold, or any separation of the various elements composing the rations, and showed no rancidity, the taste and flavor being very good. Capt. C. D. Kilbourne, Medical Corps, of the "Board for the study of tropical diseases" in the Philippines, reported, under date of June 18, 1910, that he had made feeding tests of these rations and is continuing his experiments in other directions. Mr. W. C. Holmes, of the bureau of science at Manila, examined a sample and found the ration normal in every respect, and wholesome and nutritious, and is to make further investigations. Similar tests were made by Capt. H. J. Nichols, Medical Department, and with equally favorable results, and his suggestions regarding some changes in the proportion of the food ingredients of the ration were adopted.

A limited number of cans have been sent to camps of instruction where officers in charge of detachments from the several training schools for bakers and cooks will make demonstrations; and it is the intention to send a number of cans to the different posts for the purpose of explaining to the men the use of the ration and the method of handling it, and in this way familiarize them with it so that when an emergency arises in active campaign the men will know how to use the ration.

This ration has been prepared after consultation with specialists recognized in the scientific world for their eminent scientific attainments, and also based upon the suggestions made by Captain Nichols of the Medical Department. There can be no doubt as to its efficacy for the purpose for which it is intended, and it is thought no benefit would be obtained by forcing the issue of an article which is known from every scientific and practical standpoint to be entirely adequate. Such forced use only engenders a prejudice against it and also creates doubt as to the efficacy of the ration, and it is thought much the better way would be to place small quantities in the hands of each company commander, who can from time to time expend the same to instruct the men in its use.

Occasions arise in time of war in which it is absolutely impossible to get supplies to the troops for a brief period, when it is important that the troops occupy the position they hold. In all armies a ration which is to be kept intact and to be used only when such an emergency arises is provided. It is impossible in time of peace to simulate such a condition in time of war without subjecting the men to such un-

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necessary hardship as will of itself engender an intense dislike, not only for the experiment, but for the article tried, and therefore occasion most unfavorable reports, and it seems to be a better plan to adopt a ration suggested by men of well-known scientific ability and to familiarize the men with its use in the manner above prescribed.

NEW SALES LIST OF STORES.

On August 11, 1909, by virtue of General Orders No. 172, War Department, 1909, the list of sales articles authorized for the Philippine Islands was extended to all posts in the United States, except the items of Australian milk, canned lima beans, beets, carrots, parsnips, sauerkraut, turnips, bottled chutney, curry powder, and tabasco sauce, that were intended to meet the peculiar needs and conditions in the islands, which, owing to the remoteness and complete dependence of the army upon the commissary there, do not exist in more favored regions. It was considered that there would be a benefit to the service in having practically the same sales list in the United States as for the Philippine Islands.

FIRELESS COOKERS.

The value of the fireless cooker has been demonstrated beyond all question. It was exhaustively tried out and favorably reported upon by officers of organizations and others. But as the cookers were wanted only as an adjunct to the field equipment, and not in substitution of such equipment, it would necessitate field equipment beyond what would be advisable.

In a recent request for two fireless cookers for use on practice marches, Lieut. Col. A. R. Paxton, Twenty-fourth Infantry, commanding Fort Ontario, N. Y., said:

> The demand for them is so great and their convenience so apparent to company commanders that when marches are made by companies the fireless cookers are, by mutual agreement of the company commanders, lent to those companies to be in the field. * * * This request is made on account of the great value of these cookers to troops on marches and at maneuvers, and it is based upon the reports of those officers who have them with their companies, and the desires of those who are not so supplied.

The whole matter of the adoption of fireless cookers for the army was referred to the Board of Commissary Officers, and also to the Joint Infantry Equipment Board and Commissary Board, whose duty it was to select suitable field equipment, and these boards did not recommend the adoption of the fireless cooker.

It may be stated in this connection that the Italian army is at present equipped with the cookers; the Austrian army is partly equipped with them; and the French army is considering the question of providing the troops with them.

MEAT CURING BY ELECTRICITY.

The process of curing meat by electricity is to apply an alternating current to the meat-curing pickle. It is a new method which has been successfully tried on a limited scale, and in the case of ham showed that it was in every way equal to the highest grade of ham on the market, and with less tendency to harden after cooling.

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The experiment is to be tried out on a larger scale, and the meat when treated is to be shipped to the Philippines, where, if it stands the test in that climate, will prove it to be much superior to and more desirable in every respect than the product cured in the regular way, and show that the experiment is an unqualified success.

Such a resource would be of the utmost importance to the Subsistence Department, enabling it to get properly cured meat in a very short time, and would also remove many of the objections about the high curing of both bacon and ham, which is now necessary in order to prevent these articles from spoiling in the Tropics.

ICE AND REFRIGERATING MACHINES.

Experiments made with several types of ice and refrigerating machines have been very satisfactory. The main features to recommend them are economy, cleanliness, sanitation, and simplicity of operation. They promise to solve in a satisfactory manner the troublesome problem of refrigeration demands at large posts, and especially at remote posts in the Philippines. Experiments are still proceeding, and it is hoped in a short time to be able to determine definitely what is the most desirable type for the purposes of the Subsistence Department.

SERVICE CORPS.

I again urge my recommendation for the organization of a service corps in the army. A bill for the creation of such a corps was introduced in the first session of the Fifty-ninth Congress, on January 30, 1906 (S. 3926), and one on January 6, 1908, in the first session of the Sixtieth Congress (H. R. 11788). The establishment of such a corps would, it is believed, lead to marked increase in the efficiency of the service in time of war and in time of peace.

The present system of depending upon enlisted men detailed for extra duty in the commissary is unsatisfactory. It is unfair to the company commander, because it takes away men from his company who are required with it, and it is not satisfactory to the post commissary, because it is very difficult to get competent men detailed to assist him in the clerical work of his office. The men who are detailed are required to be absent from the commissary to attend to their legitimate duties with their companies, and many times at the very hour when their services are most required. These men are constantly being relieved and new men detailed. This condition is particularly manifest in the Philippine Islands, where the men engaged in this work are not allowed extra-duty pay. Men detailed in the commissary will deliberately slight the work in order to be relieved and a post commissary will frequently have to change his help three or four times between inventories, thus making it almost impossible to fix the responsibility for any losses disclosed by the inventory. The clerical work in the commissary requires experience, exactness in figures, and promptness in rendition of accounts, returns, and requisitions, and the Government should supply the commissary competent men to do the work.

There should also be taken into consideration the inconvenience and losses that are likely to result when troops at a post are changed,

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thus taking away all the enlisted personnel familiar with the property, conditions, and duty there, whereas, if there were a service corps, the personnel would be permanent and remain at the post, affording the advantages of stability and full knowledge of affairs. It is considered of more importance that the men should remain than that the commissary should be a permanent officer at the post.

Such a corps would give the Subsistence Department a permanent corps of trained men who would not be taken away at a time when they are most needed. They would be an efficient force in time of peace, and susceptible of any required expansion in time of war. There is no question about the value to the service of the schools for bakers and cooks, and if, after proper training and graduation, the bakers could be appointed to vacancies in a service corps the efficiency of the service would be promoted in the best possible way.

RATION FOR OFFICERS AND CIVILIAN EMPLOYEES SERVING IN THE FIELD.

I renew my recommendation that officers and civilian employees serving in the field be allowed one ration each per day. To make such issues to officers would require the sanction of law, and it is hoped that the matter may be presented to Congress for its favorable consideration.

THE CLERICAL FORCE IN OFFICE OF COMMISSARY-GENERAL.

I again invite attention to the continual resignations of efficient clerks in this office which have occurred during the present and previous years. This condition is brought about owing to the slender prospects of advancement due to the lack of higher grade clerkships in the office. Of the five clerks who resigned this year, two did so to enter the business world, where inducement is held out to capable and energetic men, and three for the purpose of going to other departments where more liberal salaries are paid, and where the chance of promotion is greater. About the time clerks become of value to the department, owing to their training and experience, they note the slight prospect of advancement, and, though they like the work and are satisfied in other respects, resign to enter commercial pursuits or seek transfers elsewhere.

In the interest of the service and in justice to deserving employees I urgently recommend the passage of what is known as the reclassification bill (H. R. 22014, reported to the House of Representatives by Mr. Gillett on February 28, 1910), which would go far toward remedying conditions.

The salaries paid in the federal civil service are based on the law of 1853, and the average pay of the clerical force has not changed materially since then, while the work has become more complex and widely ramified, and the responsibilities and exactions of the service are greater than ever before.

It is disheartening to be compelled year after year to meet the constant and increasing demands for living expenses and for other calls without any advance in salary. An increase of pay and evidence of consideration would be an incentive to greater effort, and I believe the Government would be repaid for its interest and the small outlay necessary to carry into effect the provisions of the bill referred to.

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I am also convinced that if a lump sum were appropriated for the clerical force of this office, leaving its allotment to the chief of bureau according to the character of the work and the clerks who perform it, increased efficiency and economy of administration could be effected. This is practically the method followed in large corporations and business establishments; and in this way a man could be compensated for unusual interest, ability, and work, thereby insuring greater loyalty, zeal, economy, and efficiency. What has been said does not imply that the present force is not a good one, or not conscientiously employed the full number of hours of duty, but in every avocation, as long as human nature is what it is, men will do more and better work if there is some inducement. If an appropriation were made as suggested, there would be no departure from civil-service regulations in securing, advancing, or controlling the force and nothing done that would work injustice, but gradually a better system could be evolved, one that would encourage and reward the most capable and energetic, improve the esprit de corps, and in time enable the work to be done with less force. If desired, a report could be rendered at the end of each year showing how the funds were apportioned and expended, and the net results accomplished.

I also earnestly recommend the passage of a measure providing for the retirement, on some equitable plan, of old and faithful superannuated employees of the Government, for the reason that it would result in marked improvement in the service:

First, by attracting a better class of employees, a large percentage of whom by reason of the provision for old age would remain in and make the service their career, becoming expert in their particular line of work to the distinct advantage of the Government; and there never was a time when the highest qualification and equipment were more needed in the service than at present.

Second, by the added incentive held out to each employee to do his best in order to obtain promotion to higher grades, and later profiting by increased retired pay.

Third, by the periodic and automatic elimination of those whose efficiency has been impaired by age or infirmity and the introduction of younger and more vigorous men, thereby maintaining an active and efficient working force and making it possible in time to transact the business with fewer employees.

Fourth, aside from all sentimental consideration, it is believed that the service would be greatly improved if it should be known to all who enter it that a provision is made for the support of themselves and their families when old age comes upon them. It would be an inducement for them not only to remain in the service but to deport themselves in such a manner as to do nothing to forfeit so valuable a provision.

Fifth, because in cases of protracted illness employees worry over the possibility of being discharged, and the anxiety tends to retard their recovery and return, whereas if they were free from this apprehension and felt secure of being provided for in the event of becoming incapacitated their strength and courage would be sustained and recovery assisted rather than impeded.

Sixth, because railroads, corporations, and commercial houses recognize and reward long and faithful service by retirement, and regard

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it as a good business investment; and other governments also make some provision for their aged and worn-out civil servants.

THE NEW SYSTEM OF ACCOUNTING FOR THE RATION.

The new system of accounting for the ration which recently became effective was made for the purpose of simplifying and correcting the accounts of commissaries and also of affording an exact method of checking the accounts and returns of the department.

Under the old savings clause of the regulations the ration could be converted into money allowance the same as now. The gradual extension of the savings privilege to include practically the entire ration forced the department into a false system of accountability, where stores were dropped as issued that were not issued, but saved; then they had to be taken up on a savings voucher as purchased back, and substitutive articles of the ration could be so manipulated between the abstract of issues and the abstract of purchases that the transaction could not be detected. For example, prunes could be issued and dried peaches or dried apples dropped on the abstract. Of course, prunes being usually cheaper, this would throw the commissary ahead the difference between the cost of prunes and that of dried peaches or apples; likewise with potatoes and onions or canned tomatoes, fresh beef and bacon, beans and rice, vinegar and cucumber pickles. Funds could accumulate in this way in the nature of a slush fund, which, while not always used to the personal advantage of the commissary or the commissary sergeant, were frequently used to cover up small shortages that would otherwise have to be accounted for by report of survey, and thus the department was unable to get a true statement of its business.

Due to the increased number of articles of the ration and the difficulty of issuing same in the exact amounts called for on ration returns, it was necessary under the old system to constantly give organizations and individuals ration certificates showing quantities still due, and made the preparation of the abstract of issues and savings vouchers each month a laborious undertaking. When there were a number of issues to individuals, the paper work was increased many fold, and the new system was devised to do away with this multiplicity of papers and computations and at the same time show more accurately the exact transactions. The change was merely one of method of accountability and not a change in the rations or allowances. Under the new system organizations are entitled to exactly the same rations and allowances as formerly. On presentation of ration returns to the commissary organizations are allowed a credit equal to the current cost of the rations due them, against which they make purchases. At the end of the month, or when necessary to make a settlement with an organization, the credits and the purchases are balanced and the difference paid to the commissary or the organization, as the case may be. By this means all ration stores obtained by an organization from the commissary appear as sales and the abstract of issues for the components of the ration and the savings voucher are eliminated from the returns and accounts. The effect of the new system will be to lessen and to simplify the office work both in the commissary and in this office.

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The new system of ration accountability was inaugurated on July 1 for two reasons—one so that the accountability would commence with the new fiscal year, and the other, which was considered equally as important, so as to take advantage of all the maneuver camps which were established throughout the country and in which a large number of militia were assembled, and in this way to give the system the most severe trial that it could be subjected to in time of peace, a system with which neither the regular troops nor the militia were familiar; and the fact that notwithstanding this severe test the system was found to work well indicates that the system will undoubtedly prove satisfactory under all service conditions. It must be remembered also that upon the adoption of this system a new method was also provided for use in time of war beyond the advance depot, which system is referred to later.

BAKERY ACCOUNTABILITY.

A uniform method of handling the bakery accounts was also embodied in the new system of accountability and the books and blanks for same distributed. By the new system each organization gets the full value of the ration, including the flour component, on its settlement with the commissary. The bakeries purchase flour and other necessary ingredients for making bread from the commissary and sell bread to organizations, enlisted men, and individuals entitled to rations at the current price of flour, and with the proceeds settle their indebtedness to the commissary. The result has been to introduce uniformity and accuracy in the keeping of bakery accounts, which heretofore have been left to the ingenuity of the post treasurer. There being uniformity in the keeping of these accounts, the inspection and auditing of same will in the future be greatly facilitated.

WAR BLANKS.

The new system of accountability also includes a simple method of accounting for stores in time of war beyond the advance depots. A system of accountability demanded in time of peace can not be followed in the stress of an active campaign beyond the advance depots; the result in past campaigns has been an entire neglect of any form of accounting and a subsequent appeal to Congress for relief of the officers who were unable to render their accounts. The new war blanks for use beyond the advance depots are simple and can be easily kept, and it is thought will be adaptable to the use of an army composed largely of volunteers.

The theory observed in the adoption of these war blanks is the recognition of the fact that all war is waste, and also the fact of the utter impossibility of expecting that the troops actually engaged in the field can render a complete and accurate accountability for all the stores which it is necessary to provide them with. To this end all accountability in time of war ceases at the advance depot and the stores supplied for the troops engaged beyond that point are accounted for by the depot commissary dropping the same from his returns upon the orders of the commanding general of the troops, and the various commissary officers attached to the troops operating in the field are only charged with the responsibility for these stores,

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which responsibility is now shared by the trains carrying the stores and by the commissary to whom the supplies are eventually delivered. The field return of subsistence stores kept up by the commissary with the troops beyond the advance depot constitutes a memorandum upon which is entered the number of rations and other stores received by him, and shows the disposition made of the stores and furnishes all necessary information for commanding officers as to the quantity of stores still in the possession of the troops, and by this means the commissary actively engaged in the field is relieved of the laborious duty, which can not be performed by him, of accounting for the stores and is able to devote his time to the work of supplying the troops and fighting, with which it is supposed he is fully occupied. At the same time the Government is afforded full and reasonable protection against any improper disposition of its property. In some future maneuver camps it is the intention to recommend the use of these war blanks so as to familiarize the officers and men with them, and thus give them an opportunity to obtain actual experience such as they would encounter in time of war. It was thought, however, that in the recent maneuver camps it would be too much to expect the troops to familiarize themselves with an entirely new method of ration accountability and also with the use of the war blanks, and therefore the latter very valuable part of their instruction was necessarily omitted in those encampments.

SYSTEM OF RECORD KEEPING OF SALES.

The new system of keeping certain records of commissaries at posts or other places where sales are made prescribed by General Orders No. 113, June 10, 1909, and Circular No. 8, Office of the Commissary-General, June 17, 1909, has now been thoroughly tried out and has been found to be a decided improvement over the old system. Some of the larger posts claim that the requirement under paragraph 5 of Circular 8, above mentioned, which is that "at the close of business each day the quantities and articles sold will be abstracted on Form 21," involves a great amount of work, and desire, if practicable, to eliminate the abstracting. It is universally conceded that this system affords a systematic and accurate method of keeping records by which a complete check on every transaction can be made, something that was impossible under the former method.

The following are some of the comments made:

Capt. Jack Hayes, chief commissary, Department of the Lakes:

The new system of cash and credit sales, and methods of accounting for same, have been in operation during the past eight months and have given universal satisfaction.

Capt. William Elliott, chief commissary, Department of California:

The new system of sales as prescribed by General Orders, War Department, was inaugurated in this department December 1, 1910 (1909?). The posts inspected by me were found to be carrying on the system of cash-sales book, ledger, etc., in a most satisfactory manner.

Capt. Douglas Settle, chief commissary, Department of Dakota:

The new regulations affecting the Subsistence Department, published in General Orders, No. 113, War Department, 1909, and Circular 8, Office of the Commissary-General, 1909, have greatly improved and simplified the administration at posts.

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Capt. Edward Anderson, chief commissary, Department of Mindanao:

The new method of keeping records has been in use in the department since February 1 and gives good satisfaction. This system affords a systematic and accurate method of keeping records by which a complete check can be kept on every transaction. It is simple and practical and meets a long felt need of the commissary. A wide difference has been found to exist in a few cases between the stores on hand at the end of the month obtained by inventory and those which should be on hand computed from sales slips. Such irregularities can be remedied by more careful attention and accuracy as to details. Commissaries should not be permitted to drop large quantities of stores in order to make their accounts agree, as due supervision and enforcement of accurate methods will prevent such discrepancies.

Capt. T. B. Hacker, chief commissary, Department of Luzon:

On February 1 a new system of keeping accounts went into effect at all posts. The reports submitted to your office by the different post commanders indicate that the system is an improvement over the old one. The sales slips, both charge and cash, have proven a great success. The charge sales slips prevent any dispute as to the receipt of stores, and form a correct record of the office and a basis for rendering accounts. The cash sales slips could be improved by eliminating the receipt, very few purchasers paying any attention to it. Some recommendations have been made that this slip be in duplicate and the purchaser be given a carbon copy, but my opinion is that this would be an added expense, and that purchasers would pay no more attention to this than the receipt now given. The reports all indicate that the record books of this system are entirely satisfactory. The reports do not indicate that the total of the daily abstract of sales agrees with the amount to be sold as disclosed by the monthly inventory. This can probably be done at small posts where there are little sales, but at large posts where there are large sales it is very difficult to secure the necessary clerical labor to make the total of these daily abstracts agree with the amount to be sold on Form No. 12. Some commanding officers report that it has not increased the work of their commissary, but at the larger posts the reports indicate that there has been an increase, one post reporting that it required the work of two extra men in the commissary.

NEW EDITION OF SUBSISTENCE MANUAL.

A revised edition of the Subsistence Manual has just been printed, which brings it right up to date. Under the new system of accountability, which recently went into effect, so many changes were made that it was found necessary to prepare a revision to prevent confusion, and to enable commissaries of the Regular Army, as well as the militia, to more readily perform subsistence duty.

MANUALS FOR ARMY BAKERS AND FOR ARMY COOKS.

A manual for army bakers has just been issued. This is the only book on the subject which has been furnished by the Subsistence Department with the exception of "Notes on Bread Making," by Maj. (later Gen.) George Bell, Commissary, U. S. Army, which was issued in 1882. A modern manual is now a necessity, particularly since the establishment of the training schools for bakers and cooks.

A new edition of the Manual for Army Cooks will be issued very soon. Its appearance is timely, as the old manual dates back to 1896, and no longer answers the requirements, due to the advances made in the culinary art and to the new conditions brought about by the establishment and successful operation of the training schools for bakers and cooks. Upon the quality and cooking of the ration largely depend the strength and fighting force of the army, and nothing is

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more conducive to the good spirit and contentment of soldiers than a well-managed mess.

The culinary art is comparatively a neglected one among the people generally in this country, and up to a recent time, but before the establishment of the schools mentioned, slight attention was paid to it in the military service. But it is an unwise policy to devote years to training soldiers for their work and then, through lax and indifferent methods of preparing their food, unfit them for the arduous duties of the soldier, involving failure perhaps on their part at some critical moment.

TRAINING SCHOOLS FOR BAKERS AND COOKS.

The training schools for bakers and cooks were instituted to meet an urgent need of the army. Their continued improvement and increasing importance from year to year have been gratifying and have fully justified their creation. Their reputation is now firmly established.

As an evidence of the interest being manifested officers are voluntarily going to the school at Fort Riley at their own expense to take the course there; and the widening influence and usefulness of the schools are shown, among other ways, in the opportunities offered at the recurring camps of instruction for detachments from the schools to instruct the militia in the handling of the ration, thus preparing them for this important military duty, and in exhibitions at military tournaments held in cities throughout the country where their demonstrations have excited the keenest interest and merited praise from experts in civil life.

The schools have also been of great advantage in developing, listing, and perfecting means for the cooking of rations in the field. Marked success has been attained in the matter of supplying fresh bread to troops in camp. A most valuable and interesting piece of work done during the year at the schools has been the development of a concentrated bread which, it is hoped, will ultimately be substituted for hard bread. It consists of a hard, dry roll which, when soaked in water one-half minute and then exposed to the heat of a camp fire or placed in the baking chamber of the field range for a couple of minutes will increase to nearly twice its original size and be a soft, palatable bread. When eaten in its dry state it is superior to hard bread, being equal in nutrition and much more palatable. During the coming year test on a large scale will be made of this bread.

Since the last annual report some advantageous changes have been made with regard to entrance requirements and the method of detail of enlisted men to take the course of instruction at the schools by which the "compulsory" system of detail of enlisted men was changed to an "application and recommendation" system. The method heretofore of detailing men for a course at the schools has been more or less haphazard as to results as regards the actual needs of regiments and posts, while the method due to recent changes is systematic and conducive to efficiency. It is considered that if an organization commander is required to ask for the privilege of entering a soldier as a student at one of the schools, he will be more apt to confine himself to the actual needs of his organization, and will be careful to select the very best material.

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It was hoped that provision would be made in the new regulations for a special course for mess sergeants, extending over a period of six months. A mess sergeant should know all about handling food for the companies, and if possible should be the best cook and the best baker in the company, so there would be no excuse for the company not being well fed. It would therefore seem most essential for the mess sergeant to take a course as cook, a course as baker, and a course as mess sergeant. It is believed to be much easier to retain trained mess sergeants in the service than trained cooks, and with such a mess sergeant in the company trained cooks would not be absolutely essential, as the mess sergeant could train his own cooks, and for these reasons it is thought that they should be given the best possible course of training.

COURSE OF STUDY.

The following is the course of study pursued by students at the School for Bakers and Cooks at Fort Riley, Kan.:

COURSE OF STUDY FOR STUDENT BAKERS.

Students are expected to arrive about the 13th day of each month. They are given a day or two (until about the evening of the 14th) to get settled in their quarters and to familiarize themselves with the school regulations.

PRACTICAL WORK.

The class usually commences to work on the evening of the 14th and is assigned to duty at the post bakery which is operated by the school.

During the first few weeks the details are arranged so that members of the graduating class and the new men work together in pairs. As the instruction progresses the new men are thrown more and more on their own resources.

The student bakers are detailed by roster on the various duties of making straight doughs, sponges, yeasts, and ferments; on machine work, fires, ovens, and pans; on field expedients and in handling the field ovens; as sales clerk, in charge of the bread room and mixing room orderly.

All sorts of white, rye, and graham bread, rolls, buns, and doughnuts are made each week for instruction.

Each student baker is given four days' work each month in handling the regimental field bakery and its equipment. So that the student starts in as one of the assistants the first month, the fourth month should find him in charge of the regimental field bakery, and he is marked and graded on the class of work he turns out.

In order to test the ability of student bakers to handle a bakery as chief baker, each member of the graduating class is given three days' continuous charge of the bakery, and his ability to perform the duties required of him is taken into consideration in determining his fitness as chief baker. During this time he will control all help and the details, make out all reports and accounts required as a chief baker.

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THEORETICAL WORK.

When the student baker reports for duty he is issued the authorized text-book, the "Army Baker," a copy of the school regulations, and told to study them. Every day in the afternoon, except Saturday and Sunday, recitations are held for one hour in arithmetic and the handling of bakery accounts. All student bakers are required to attend these recitations until they can pass the required examination, whether it takes one week or the full term of four months to do so.

During the last month of the course recitations are held daily, except Saturday and Sunday, for one hour in the authorized text-book. Upon finishing the book each student is examined separately by an officer.

Upon completion of the four months' course, student bakers are rated as chief bakers, assistant bakers, or nongraduates, according to their ability. In determining the class standing of student bakers: 200 points are allowed for practical work in the post bakery; 100 points for practical work in the field bakery; 50 points for cleanliness and work as mixing-room orderly, issue clerk, etc.; 100 points for recitations; 150 points for examination; 600 points total; 450 points are required for proficiency.

COURSE OF STUDY FOR STUDENT COOKS.

Students are expected to arrive about the 13th day of each month. They are given a day or two to get settled in quarters and to familiarize themselves with the school regulations.

PRACTICAL WORK.

The new class is assigned to duty in the various organization kitchens operated by the school as assistants to the first and second cooks and work with them, having the same hours for work. Upon graduation or promotion of first and second cooks, members of the lower classes take their places. The assignment to duty as first or second cook simply means that the student is being tried in that particular position and he will graduate as such only in case his work is satisfactory.

As a rule each kitchen has a crew of five men from the school; one assistant instructor in cooking, one first cook with his assistant, and one second cook with his assistant. As far as practicable, the fourth classman commences his work in the kitchen as assistant to the second cook. The duties of assistants are to assist the cooks in the preparation of all meals and the general cleaning of kitchen utensils and equipment.

The first and second cooks alternate in the preparation of the daily meals, and the arrangement is such that the cook who is off duty in the afternoon, attends afternoon recitations and fresh-beef inspection the following morning.

While on duty as second and first cooks each student cook is required to use the field expedients for cooking one meal each week. He also receives before graduation one week's work in each of the following field pastry kitchens, to wit: Pies, sweet doughs, and cakes, which are baked for instruction.

During the last month of the course in order to determine their ability to maintain a good mess on the ration allowance, the students

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of the first class are given charge of kitchens in the capacity of mess sergeants, and upon demonstrating their ability are graduated as such.

THEORETICAL WORK.

Upon the new class reporting they are issued the authorized textbook on cooking, and a copy of the school regulations.

During the period that student cooks perform the duties of assistants (not to exceed two months) they attend recitations in theory and practice on cooking.

During the last two months of the course student cooks receive theoretical and practical instruction in dressed-beef inspection and cutting up the beef carcass for company use.

Practical examinations are held weekly, during this period in the theory and practice of cooking, and final examination upon completion of the course.

During the period that student cooks perform the duty of first and second cooks they receive instruction on alternate days in the handling of accounts and figuring out the cost of rations. They are relieved from this class of recitations as soon as they are able to pass a satisfactory examination. The examinations are held once each week.

Upon completing the course, student cooks are rated as mess sergeants, first cooks, second cooks, or nongraduates.

Since the establishment of the training schools for bakers and cooks at Fort Riley, Kans., Washington Barracks, D. C., and the Presidio of San Francisco, Cal., 562 bakers and 1,219 cooks have been graduated. Of this total, 141 bakers and 328 cooks were graduated during the fiscal year 1910, and 421 bakers and 891 cooks during the previous years.

The number graduated during the present year at the different schools was as follows: At Fort Riley, Kans., 71 bakers and 195 cooks; at Washington Barracks, D. C., 32 bakers and 43 cooks; and at the Presidio of San Francisco, Cal., 38 bakers and 90 cooks. The total number of officers who have graduated during the present year at Fort Riley is 4 commissary officers and 3 officers of the line, and during previous years 18 commissary officers and 60 officers of the line.

NEW DESIGN OF FIELD OVENS AND RANGES.

Two new types of field ovens and ranges have been adopted and a limited number were in use at the different camps of instruction and at military tournaments held in a number of cities.

The following tables indicate the pattern, dimensions, weight, capacity, and approximate cost of the ovens and ranges complete:

FIELD OVENS.

Pattern.	Dimensions (inches).	Weight (pounds).	Cooking capacity (rations.)	Approximate cost.
No. 1	59 by 51 by 53	2,800	216	$430
No. 2	70¼ by 54¼ by 45	2,607	240	386

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FIELD RANGES.

Pattern.	Dimensions (inches).	Weight (pounds.)	Cooking capacity (number of men).	Approximate cost.
No. 1	35½ by 25½ by 17	230	111	$26
No. 2	20⅛ by 21¾ by 16¼	160	55	18

The No. 1 oven was designed by Capt. L. R. Holbrook, commissary, and Post Commissary Sergt. Patrick Dunne. The No. 2 oven is the design of the Middleby Oven Manufacturing Company, with certain modifications suggested by officers of the Subsistence Department. The field ranges were the joint work of the infantry equipment board and the board of subsistence officers, Captains Koester and Holbrook, assisted by Major Davis and Post Commissary Sergeant Dunne.

The greatest credit is due the Infantry Equipment Board, the Board of Subsistence Officers, and Major Davis, Captain Holbrook, and Post Commissary Sergeant Dunne in designing and working out the ingenious and excellent models of the field ovens and ranges.

The field ranges designed by the Joint Infantry Equipment Board and the Commissary Board, which have been adopted, are believed to be the very best devices for field cooking which have ever been used in any army. While they are sufficient to cook for a company at war strength, it is yet possible to arrange them to make them adaptable for pack transportation, and if subsisting by companies is done in the field it is thought that this type is the very best that can be procured. It is a great satisfaction to note that the development of a suitable type of continuous, knock-down field oven has been made, and that for the first time since the close of the civil war, by the means provided the troops by the Government itself, it has been possible to supply all the troops in camp with fresh bread of excellent quality. With the development of suitable field ovens, we now have prescribed in the Field Service Regulations a division field bakery column, which will enable fresh bread to be supplied to the troops in the field whenever it is possible to reach them with any supplies. The type of oven thus developed, a knock-down continuous baker, with the necessary bakery equipment and the tentage, can be packed into one wagon and thus reduce the transportation of the field bakery column over 50 per cent below that which would be required in the case of rolling ovens, as in many of the foreign armies. When the rolling oven is in use an additional wagon is necessary to carry the bakery equipment.

ROLLING FIELD KITCHEN.

The problem as to the best method of subsisting troops in the field is a vital one. In the United States Army cooking by company is done in garrison and in the field. It is believed that the health of the men, as well as their comfort and convenience, is subserved, and economy of the individual's time and of the food supply assured by organization cooking by competent cooks. It is proposed, by means of the new rolling field kitchen, to provide for cooking for a battalion.

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The question of such a kitchen was considered by the General Staff and was, upon its suggestion, submitted to the Infantry Equipment Board for an opinion as to the advisability of experimenting with such a device. The latter board, after due consideration of the matter, expressed the opinion that the subject should be referred to a competent board for mature and careful study, experiment, and recommendation, and that adequate funds should be allowed for such purpose. In compliance with the suggestion, a board of officers was appointed by Special Orders No. 46, War Department, 1910, consisting of Capts. F. J. Koester, William Elliott, and F. M. Stopford, commissaries, the latter of whom had already made some preliminary experiments with a rolling kitchen. The board was also to be assisted by Post Commissary Sergeant Dunne, and $5,000 subsistence funds was allowed for use in the construction and experiments with the kitchen to be developed. Work on the same was completed and some preliminary trials made during the present year. Recently the latest type, containing certain improvements suggested by the preliminary try out, was prepared and is now undergoing final test at the camp of instruction at Atascadero, Cal.

LIVE-STOCK EXPOSITION.

A live-stock exposition was held at Chicago from November 27, 1909, to December 10, 1909, to which the Subsistence Department received an invitation to send a representative. It is the desire to have a representative whenever practicable at food conventions and live-stock exhibitions, because of the educational features they afford to officers attending them and the ultimate value they are to the department.

Capt. Edward Anderson, chief commissary, Department of the Lakes, was designated as the representative of the Subsistence Department, and submitted an interesting report, and among other matters the following is of especial interest:

> The exhibits of cattle, sheep, and swine were excellent, both as to quality and quantity. The improved breeds of beef cattle are rapidly taking the place of range cattle, which industry is passing. Small farms are taking the place of the large ranges, which increases the demands for improved breeds of cattle, as by handling the latter under scientific conditions as to feeding an acre of land can be made to produce many times the pounds of beef it grew under the old conditions, the quality of the beef placed on the market for public consumption is improving accordingly, and the same remarks may be said to apply to the production of sheep. The pure-bred Aberdeen Angus appears to be the favorite breed of choice beef, the champion steer of the exposition this year being a two-year old of this breed from Kansas.
>
> The excellent results obtained in judging cattle, sheep, and swine by the students of the many agricultural colleges represented here show that these schools, besides teaching the theory, are also drilling their students in the hard practical work of successful animal husbandry, and well fulfilling the purpose for which these colleges were endowed by the General Government.

MILITIA.

Joint encampments of the Regular Army and Organized Militia were held during the latter part of the fiscal year in the artillery district of New London, the State of New York alone participating; the artillery district of Mobile, the State of Alabama alone partici-

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pating; the artillery district of Savannah, the State of Georgia alone participating; the artillery district of Charleston, the State of South Carolina alone participating; the artillery district of San Diego, the State of California alone participating; and in the artillery district of San Francisco, the State of California alone participating. The total amounts expended on account of the militia were as follows: New York, $3,462.84; Alabama, $163.95; Georgia, $241.62; South Carolina, $177.72; California, at San Diego, $73.83, and at San Francisco, $329.53.

Respectfully submitted.

HENRY G. SHARPE,
Commissary-General.

The SECRETARY OF WAR.

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REPORT OF THE SURGEON-GENERAL.

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REPORT OF THE SURGEON-GENERAL.

WAR DEPARTMENT,
OFFICE OF THE SURGEON-GENERAL,
Washington, July 1, 1910.

SIR: I have the honor to submit herewith a report upon the work of the Medical Department of the Army, together with a financial statement for the fiscal year ending June 30, 1910, and a study of the health and sanitary conditions of the army for the calendar year 1909.

HEALTH OF THE ARMY.

OFFICERS.

The mean strength of officers was 3,822 as obtained from the returns of the Medical Department and 4,283 from the office of The Adjutant-General.

There were 2,404 admissions, 18 deaths, and 115.7 constantly noneffective from all causes, equal to ratios of 628.99, 4.20 and 30.27, as compared with ratios of 575.47, 4.85 and 29.41 for the year 1908.

The admission and constantly noneffective rates were a little higher than for 1908.

The principal causes of admission in the order of their importance were influenza, 51.02; bronchitis, 40.55; diarrhea and enteritis, 33.23; sprains and muscular strains, 31.40; malarial fevers, 26.69, and dengue, 24.33.

OFFICERS RETIRED.

Fifty-one officers were retired on account of disability during the year, making a rate of retirement for disability of 11.91 per 1,000, which is slightly lower than last year, and by comparison with which it may be noted that the discharge rate for disability in enlisted men is 16.84. Three officers were retired on account of gunshot wounds and two for other injuries.

The following are the principal diseases for which retirements were made:

Officers retired on account of disabilities.

Organic heart disease	9
Neurasthenia	7
Chronic amœbic dysentery	3
Tuberculosis	3
Insanity	3
Deafness	2
Aneurism	2
Other diseases	17
Result of gunshot wounds	3
Result of other injuries	2
Total	51

Rate, 11.91 per 1,000.

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Rank and age of officers retired.

Rank.	Number.	Age.							
		25-29.	30-34.	35-39.	40-44.	45-49.	50-54.	55-59.	60-64.
Brigadier-generals	3							1	2
Colonels	3							2	1
Lieutenant-colonels	4						4		
Majors	13		1	4	1	4	2	1	
Captains	17		6	4	4	2		1	
First lieutenants	7	2	2	2	1				
Second lieutenants	4	2	1	1					
Total	51	4	10	11	6	6	6	5	3

TEST EXERCISES FOR FIELD OFFICERS.

Of the 659 officers of field rank who are subject to the annual physical test, 37 were excused in 1909. In 13 the disability was regarded as permanent; in 20 it was temporary, and 4 were excused for other reasons than physical disability. Of the 13 officers reported as permanently disabled, 6 have been since retired, 1 has died, and 6 still remain on the active list; of those temporarily disabled, 5 afterwards successfully underwent the test, and of those excused 7 were 60 years of age or over. As regards the rank and arm of the service, they were distributed as follows:

Arm of service.	Rank.			
	Colonel.	Lieutenant-colonel.	Major.	Total.
Infantry	3	2	2	7
Cavalry		2	2	4
Field Artillery	1	1		2
Coast Artillery Corps	2		2	4
Engineers	4	3		7
Medical Department		1	2	3
Quartermaster's Department		1	2	3
Other staff departments	1	2	4	7
Total	12	12	14	37

ENLISTED MEN.

The mean enlisted strength of the army, American troops, white and colored, for the year 1909, as reported on the monthly sick reports of the Medical Department, was 74,319, and on the returns of The Adjutant-General's office 75,399. The former represents the strength of the commands from which the sick returns were made and was used in calculating all ratios except those for deaths and discharges. As all deaths and discharges were reported, even of those absent from a command, the total strength as obtained from The Adjutant-General was used in calculating ratios pertaining to those headings. This shows a considerable increase in strength over the year 1908, for which the medical returns showed 65,406 and The Adjutant-General's office 67,515.

During the year 1909 American troops were stationed in the United States proper, the Philippine Islands, Alaska, Hawaii, and Cuba, from which island the army of Cuban pacification was withdrawn during the months of February and March, 1909. Native troops served in Porto Rico and the Philippines.

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Statistics for the native troops—Porto Rican and Filipino—have been separately compiled, and when reference is made to the "army" in this report, the American Army proper, white and colored troops, is meant.

As in many diseases, notably the venereal and malarial, the same soldier is often admitted several times on account of the same case of illness, the total number of admissions is necessarily considerably greater than the actual number of cases. The extent of this discrepancy for diseases and injury is 7.69 per cent, as shown in the following table, in which, however, only those diseases are shown where the difference between admissions and cases was 10 or more:

TABLE No. 1.—*Admissions and cases compared, United States Army, 1909.*

	Admissions and cases (men) compared.			
	Admissions.	Cases (men).	Excess of admissions over cases.	Percentage of admissions deducted to show cases.
Inoculation against typhoid fever (3 usually given)	202	155	47	23.27
Malarial fever	2,855	2,497	358	12.54
Influenza	2,008	1,936	72	3.59
Dysentery	675	618	57	8.44
Dengue	1,695	1,576	119	7.02
Mumps	720	709	11	1.53
Vaccinia	1,130	1,105	25	2.21
Tuberculosis (all)	350	337	13	3.71
Syphilis	2,263	1,839	424	18.74
Chancroids	2,287	2,122	165	7.21
Gonorrhea	10,090	8,644	1,446	14.33
Acute articular rheumatism	567	494	73	12.87
Rheumatism, articular, subacute, and chronic	413	348	65	15.74
Alcoholism	1,775	1,501	274	15.44
Epilepsy	129	112	17	13.18
Neuralgia	452	416	36	7.96
Conjunctivitis, acute	576	533	43	7.47
Errors of refraction	108	96	12	11.11
Diseases of the middle and internal ear	454	390	64	14.10
Organic disease of the heart	167	142	25	14.97
Varicocele	207	195	12	5.80
Hemorrhoids	507	483	24	4.73
Adenitis, nonvenereal	431	401	30	6.96
Functional disease of the heart	178	162	16	8.99
Coryza	1,692	1,563	129	7.62
Chronic nasal catarrh	60	49	11	18.33
Acute bronchitis	2,329	2,194	135	5.80
Chronic bronchitis	192	177	15	7.81
Pleurisy	190	177	13	6.84
Asthma	110	69	41	37.27
Diseases of the teeth, gums, and alveoli	749	722	27	3.60
Tonsillitis	4,039	3,776	263	6.51
Other diseases of the pharynx	1,028	997	31	3.02
Dyspepsia	1,849	1,751	98	5.30
Gastritis	872	803	69	7.91
Diarrhea, acute	1,820	1,732	88	4.84
Enteritis	663	639	24	3.62
Intestinal parasites	387	367	20	5.17
Hernia	268	243	25	9.33
Constipation	1,764	1,666	98	5.56
Appendicitis	347	320	27	7.78
Hydrocele	49	39	10	20.41
Orchitis, nonvenereal	224	212	12	5.36
Furunculosis	1,960	1,693	267	13.62
Acute abscess, phlegmon	1,080	1,030	50	4.63
Corns and warts	345	316	29	8.41
Ingrowing nails	445	425	20	4.49
Dermatitis from poisonous plants	389	356	33	8.48
Eczema and pemphigus	235	218	17	7.23
Scabies	424	394	30	7.08
Dhobie itch	212	199	13	6.13
Synovitis	160	142	18	*11.25
Muscular rheumatism and myalgia	1,741	1,586	155	8.90
Congenital malformations	130	112	18	13.85
Febricula, simple, continued, and other undetermined fevers	470	456	14	2.98
Debility following operation and disease	195	185	10	5.13

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TABLE No. 1.—*Admissions and cases compared, United States Army, 1909*—Continued.

	Admissions and cases (men) compared.			
	Admissions.	Cases (men).	Excess of admissions over cases.	Percentage of admissions deducted to show cases.
Under observation, undiagnosed, and unknown	565	543	22	3.89
Fractures	804	786	18	2.24
Dislocations	219	207	12	5.48
Sprain	3,551	3,354	197	5.55
Strain, muscular	679	659	20	2.95
Abrasions and blisters (mechanical)	1,173	1,121	52	4.43
Contusions	3,098	2,965	133	4.29
Wounds:				
Contused	490	480	10	2.04
Incised	969	957	12	1.24
Lacerated	1,250	1,217	33	2.64
Punctured	509	499	10	1.96
Secondary results of injuries	527	483	44	8.35
Diseases and injuries, except as shown in detail	8,509	8,233	276	3.24
Grand total	79,000	72,923	6,077	7.69
Total for diseases	64,354	58,827	5,527	8.59
Total for external causes	14,646	14,096	550	3.76

CONSTANTLY NONEFFECTIVE RATE.

The constantly noneffective rate, which is the true measure of the loss in efficiency of the army from sickness and injury, was 41.48 per 1,000, as compared with 42.68 for 1908, 46.17 for 1907, and 49.79 for 1906.

TOTAL ADMISSIONS TO SICK REPORT.

The total number of admissions to sick report was 79,000, equal to an admission rate of 1,062.99, as compared with 1,188.03 for the previous year and 1,218.26 for 1907.

DEATHS FROM ALL CAUSES.

The deaths from all causes number 370, of which 228 were from disease. The death rate for all causes was 4.91, and 3.02 for disease, as compared with 6.13 and 3.48, respectively, for the preceding year.

In the action with the outlaw Jakiri and his band on the island of Patian in the Department of Mindanao, in the early part of July, 1909, there were 2 soldiers killed instantly and 2 died of wounds received. In addition to these there were 3 officers and 11 enlisted men wounded. There were 2 American soldiers killed by Moros while walking post in the Department of Mindanao, P. I.

DISCHARGES FOR DISABILITY.

The discharges for disability numbered 1,270, the rate being 16.84, as compared with 18.48 for 1908 and 20.15 for 1907.

ADMISSION RATES FOR DISEASE.

The ratio for 1909 was 865.92 per 1,000 of mean strength; for the previous year, 962.88, and for the decade 1,379.25. By reference to Chart A, below, it will be seen that the health of the army has constantly improved since the year 1899, when its admission rate for disease alone was 2,125.74.

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CHART A.—*Showing the total admission rate for disease, by years, since 1888, for the army.*

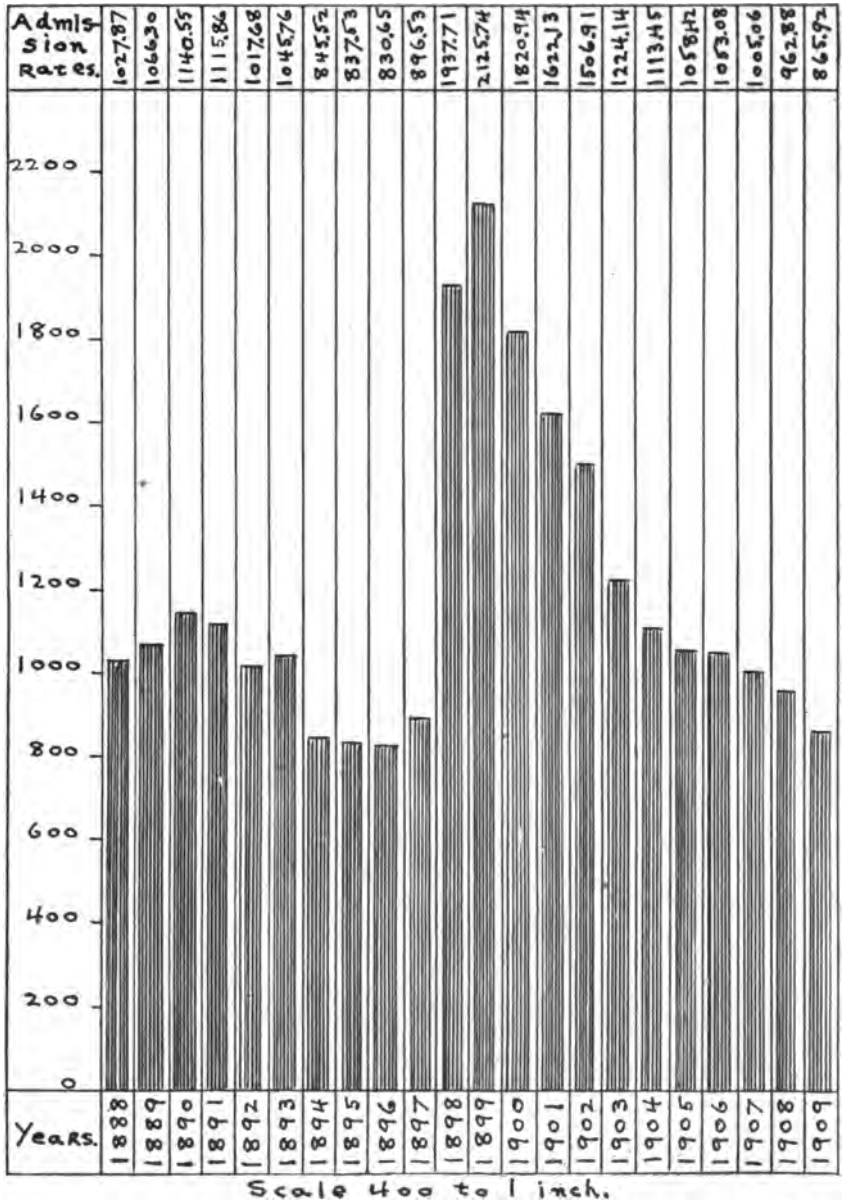

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TABLE No. 2.—*Numerical view of the effect of disease and injury on United States troops serving at home and abroad in the year 1909, compared with corresponding data for the year 1908, by countries—Absolute numbers.*

American troops (enlisted).		Mean strength.	Admitted.			Discharged on surgeon's certificate of disability.			Died.			Total losses.			Noneffective from sickness.	
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Days treated.	Constantly noneffective.
United States	1909	57,124	58,516	46,943	11,573	1,081	974	107	277	170	107	1,358	1,144	214	827,723	2,267.73
	1908	46,316	53,198	42,699	10,499	1,026	920	106	257	149	108	1,283	1,069	214	698,304	1,907.93
Alaska	1909	1,064	415	300	115	5	1	4	2	.....	2	7	1	6	6,299	17.26
	1908	1,015	426	275	151	4	3	1	10	3	7	14	6	8	4,825	13.18
Cuba	1909	604	482	406	76	2	2	.....	1	1	.....	3	3	.....	6,524	17.87
	1908	4,694	5,641	4,456	1,185	102	99	3	22	12	10	124	111	13	66,200	180.87
Philippine Islands	1909	12,844	17,314	14,854	2,460	151	139	12	85	54	31	236	193	43	246,467	675.25
	1908	11,971	17,234	14,459	2,775	105	83	22	113	61	52	218	144	74	233,739	638.63
Hawaii	1909	1,014	1,197	851	346	15	14	1	2	1	1	17	15	2	19,452	53.29
	1908	255	327	262	65	11	10	1	2	1	1	13	11	2	3,510	9.59
Army transports	1909	1,669	1,076	1,000	76	.....	.....	.....	3	2	1	3	2	1	18,868	51.69
	1908	1,155	878	827	51	.....	.....	.....	10	9	1	10	9	1	15,112	41.29
Total	1909	74,319	79,000	64,854	14,646	1,270	1,146	124	370	228	142	1,640	1,374	266	1,125,333	3,083.10
	1908	65,406	77,704	62,978	14,726	1,248	1,115	133	414	235	179	1,662	1,350	312	1,021,690	2,791.50
Regular Army, American troops, 1899 to 1908		65,500	1,045,804	903,411	142,393	15,458	13,563	1,895	7,201	4,880	2,321	22,659	18,443	4,216	.....	.....

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TABLE NO. 3.—*Numerical view of the effect of disease and injury on United States troops serving at home and abroad in the year 1909, compared with corresponding data for the year 1908, by countries—Proportionate numbers.*

American troops (enlisted).		Mean strength.	Admitted.			Discharged on surgeon's certificate of disability.			Died.			Total losses.			Constantly noneffective.	Days treated.	
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease	Injury.		Each soldier.	Each case.
United States	1909	57,124	1,024.37	821.77	202.59	15.87	17.01	1.87	4.84	2.97	1.87	23.71	19.98	3.74	39.70	14.49	14.15
	1908	46,316	1,148.59	921.91	226.68	21.35	19.15	2.21	5.35	3.10	2.25	26.70	22.24	4.46	41.19	15.08	13.13
Alaska	1909	1,064	390.04	281.95	108.08	4.36	.87	3.49	1.75	.....	1.75	6.11	.87	5.24	16.22	5.92	15.18
	1908	1,015	419.70	270.94	148.77	3.67	2.75	.92	9.17	2.75	6.42	12.84	5.50	7.34	12.99	4.75	11.33
Cuba	1909	604	798.01	672.19	125.83	3.31	3.31	.....	1.66	1.66	.....	4.97	4.97	.....	29.59	10.80	13.54
	1908	4,694	1,201.75	949.30	252.45	21.46	20.83	.63	4.63	2.53	2.10	26.09	23.36	2.73	38.53	14.10	11.74
Philippine Islands	1909	12,844	1,348.02	1,156.49	191.53	11.43	10.52	.91	6.43	4.09	2.35	17.86	14.61	3.26	52.27	19.19	14.24
	1908	11,971	1,439.65	1,207.84	231.81	8.65	6.84	1.81	9.31	5.03	4.28	17.96	11.87	6.09	53.35	19.53	13.56
Hawaii	1909	1,014	1,180.47	839.25	341.22	13.80	12.88	.92	1.84	.92	.92	15.64	13.80	1.84	52.56	19.18	16.25
	1908	255	1,282.35	1,027.45	254.90	39.15	35.59	3.56	7.12	3.56	3.56	46.27	39.15	7.12	37.61	13.76	10.73
Army transports	1909	1,669	644.70	599.16	45.54	.....	.....	.....	1.45	.96	.48	1.45	.96	.48	30.97	11.30	17.53
	1908	1,155	760.17	716.02	44.16	.....	.....	.....	8.31	7.48	.83	8.31	7.48	.83	35.75	13.08	17.21
Total	1909	74,819	1,062.99	865.92	197.07	16.84	15.20	1.64	4.91	3.02	1.88	21.75	18.22	3.53	41.48	15.14	14.24
	1908	65,406	1,188.03	962.88	225.15	18.48	16.51	1.97	6.13	3.48	2.65	24.62	19.99	4.62	42.68	15.62	13.15
Regular Army, American troops, 1899 to 1908		65,500	1,596.65	1,379.25	217.39	23.30	20.44	2.86	10.85	7.35	3.50	34.15	27.79	6.36	.....	.....	.....

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EXTERNAL CAUSES.

There were 215 admissions for gunshot wounds, including 13 shot in action, with 51 deaths, including 2 killed and 4 who died of wounds incurred in action, and 25 suicides by gunshot wounds. Eighteen were discharged on account of gunshot wounds.

Wounds other than gunshot (contused, lacerated, incised, and punctured) caused 3,218 admissions, 17 deaths, and 18 discharges.

Drowning caused 28 deaths (1 suicidal); poisoning (acute) 11 deaths (4 suicidal).

There were 33 suicides, 15 homicides, and 4 deaths "shot by sentry or guard."

There were no deaths from sunstroke, freezing, or lightning stroke.

NONEFFECTIVE RATES FOR DISEASE.

The accompanying chart, "D," giving the total noneffective rates for diseases for the two past decades, shows in a striking way the increase in sickness due to the exposures to tropical climates and conditions consequent upon the occupation of new territory during and since the Spanish-American war. It also shows a steady diminution in sickness after the first year of colonial expansion in 1898, with the rapid advance of our knowledge of tropical diseases and preventive medicine and the establishment of more sanitary conditions of living in our tropical possessions.

The progressive improvement since 1898 has been due chiefly to sanitary control of the infectious fevers—malarial, typhoid, and yellow fever. It would be even greater than at present if it had not been offset to a considerable extent by the formidable increase in the venereal diseases and tuberculosis.

VENEREAL DISEASE.

The slight diminution in the occurrence of venereal diseases last year gave hope that the campaign of education on this subject which has been begun through the medical officers was beginning to bear fruit, but 1909 unfortunately shows an increase not only over the preceding year, but over any other year of which there is record, except 1905. The total number of admissions was 14,640, representing 12,605 cases, with an admission rate of 196.99, as compared with 194.13 for the preceding year, and a constant noneffective rate of 13.07 as compared with 11.65. (See Chart B.) Disheartening as is this record, it is, if one may accept the opinions of high medical authorities, exceeded by the prevalence of these diseases in civil life, and it will be very difficult to make any substantial improvement in the record of the army in this respect until the state and municipal authorities are aroused to the necessity of taking serious sanitary measures to restrict their ravages. Attention is invited to a fuller discussion of this question under the heading of "Venereal diseases, United States, continental," page 58.

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CHART B.—*Showing the admission rates for venereal diseases and alcoholism in the army, years 1897 to 1909.*

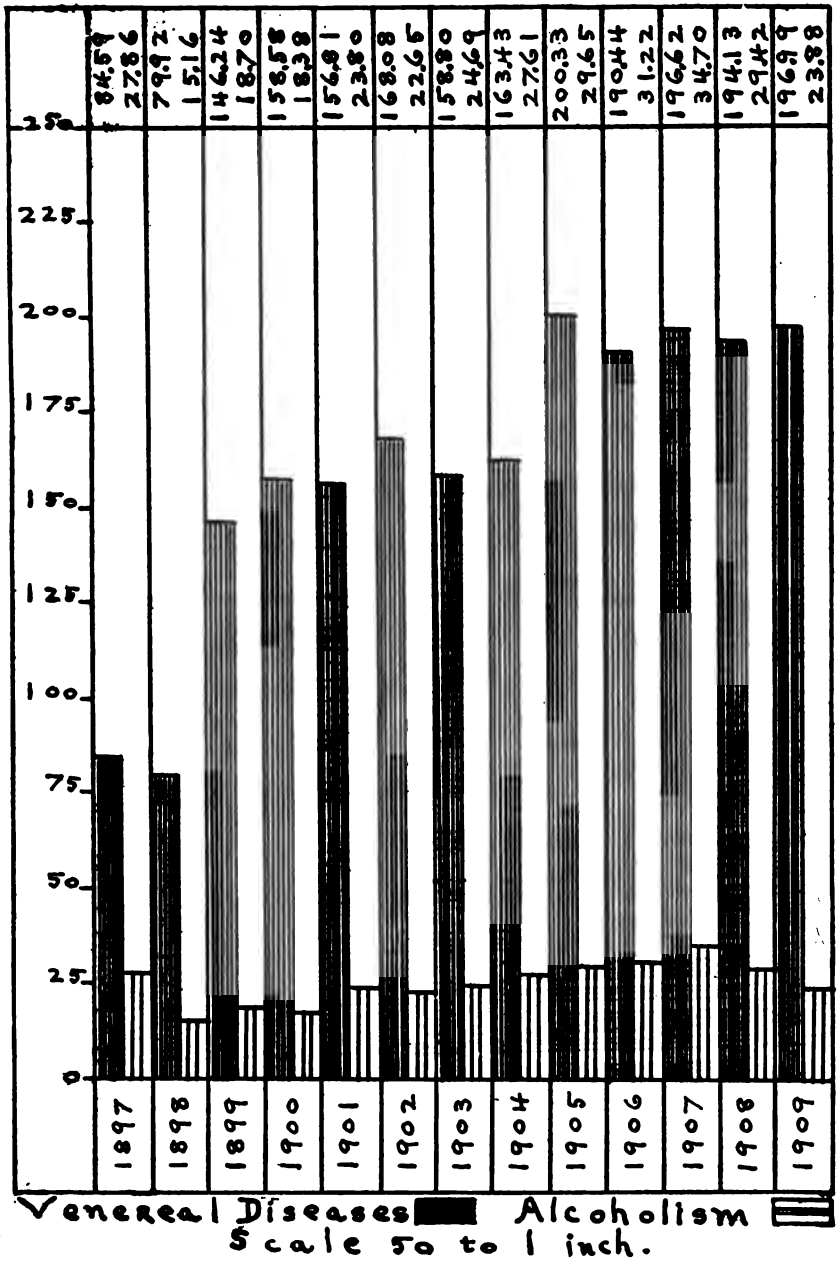

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CHART C.—*Showing total death, discharge, and noneffective rates for disease, by years since 1888, for the army.*

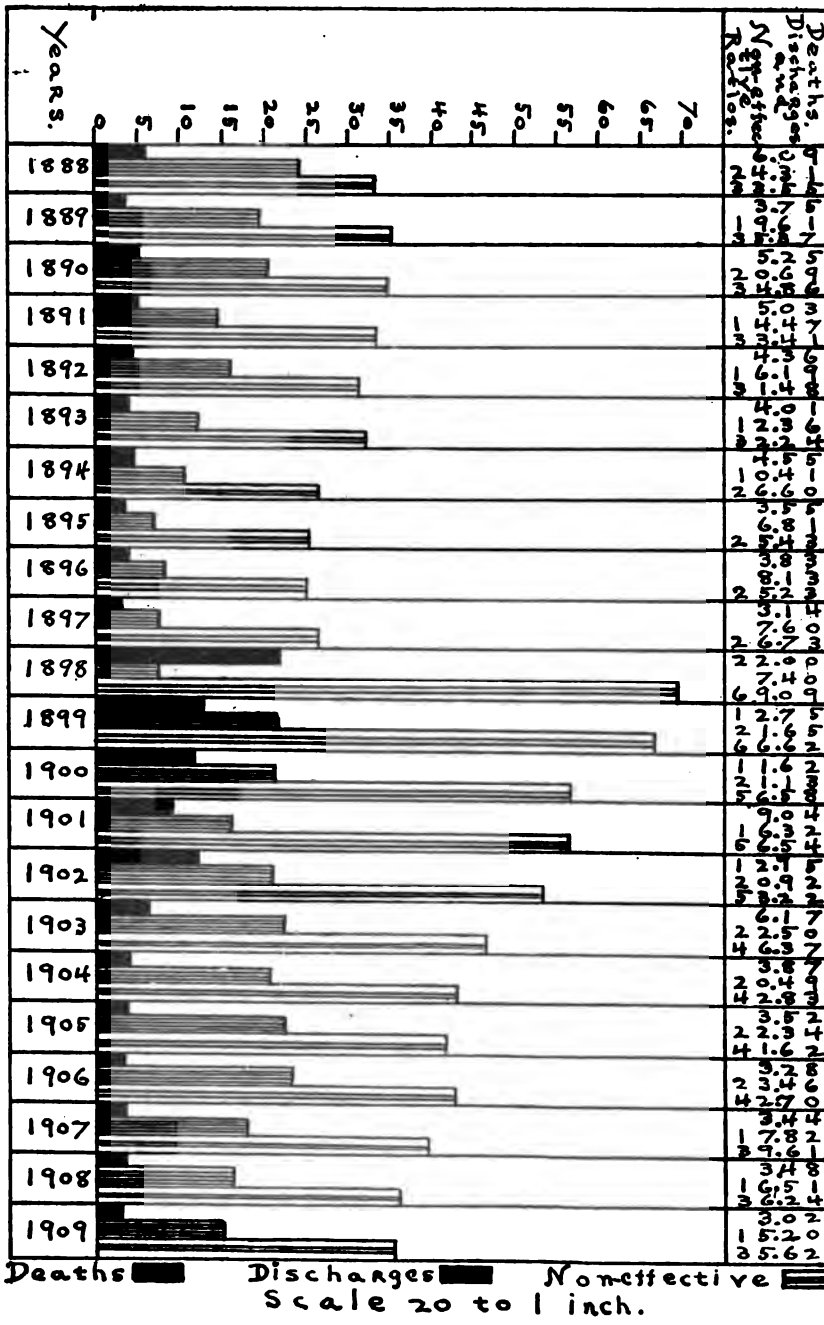

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Chart D.—*Showing the total noneffective rate for disease, by years, since 1888, for the army.*

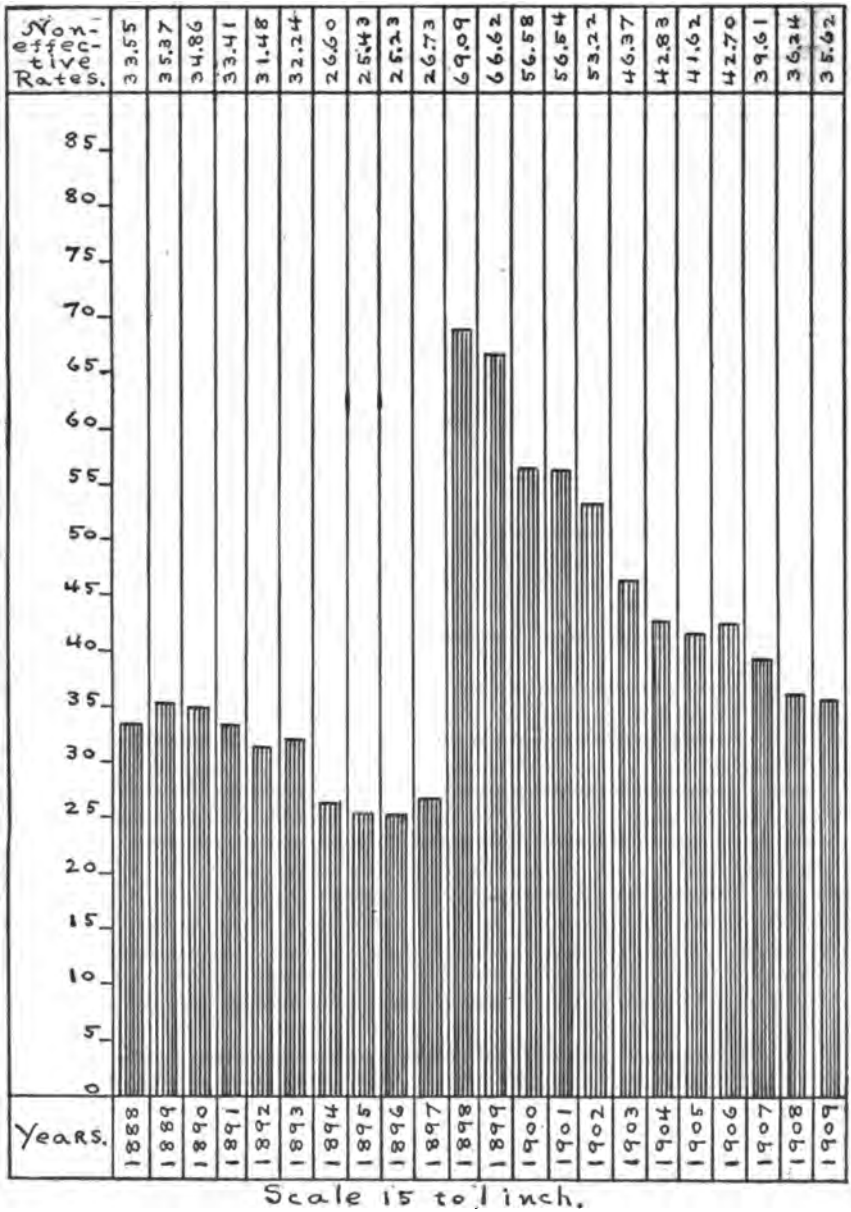

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CHART E.—*Showing for the army the rates for total losses, all causes, by years, since 1888.*

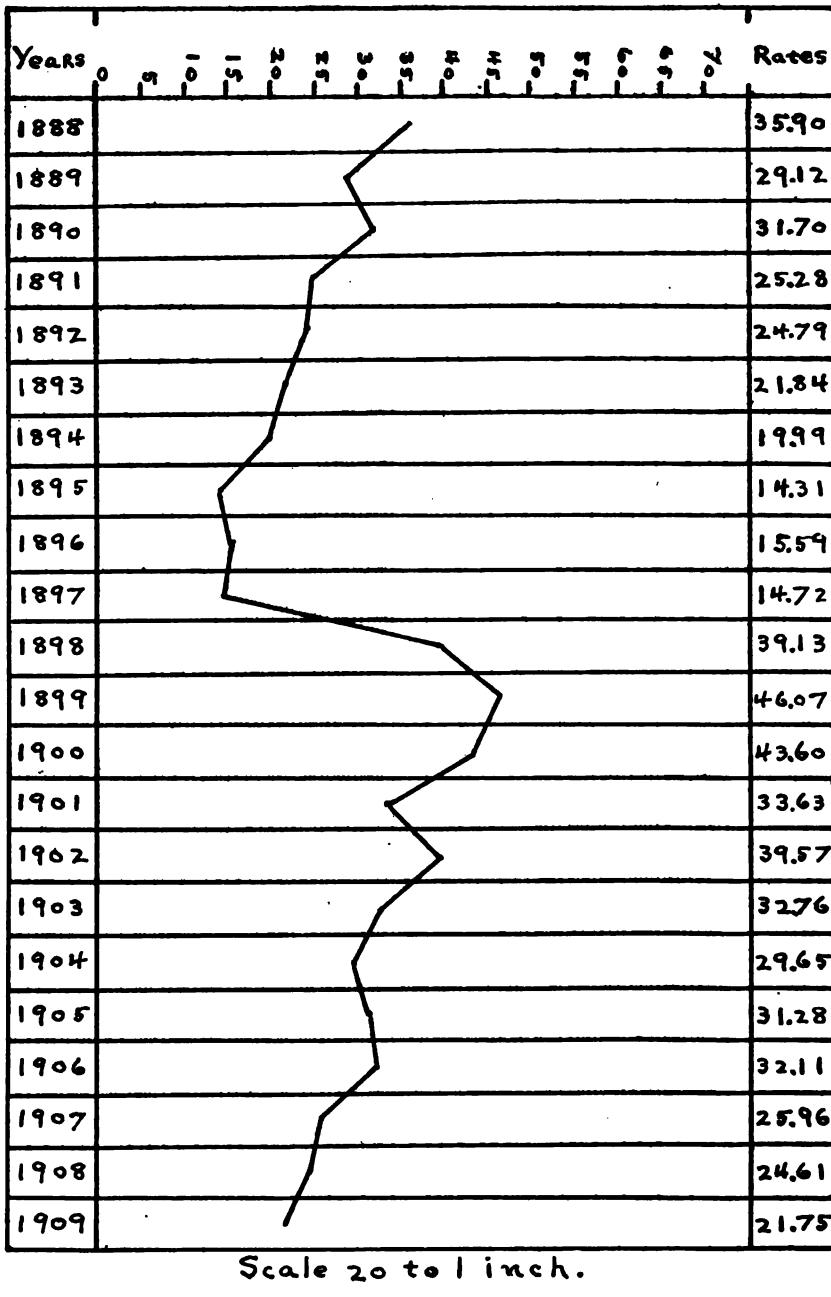

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Chart F.—*Showing for the army the death rates for the three diseases having the highest rates in 1909.*

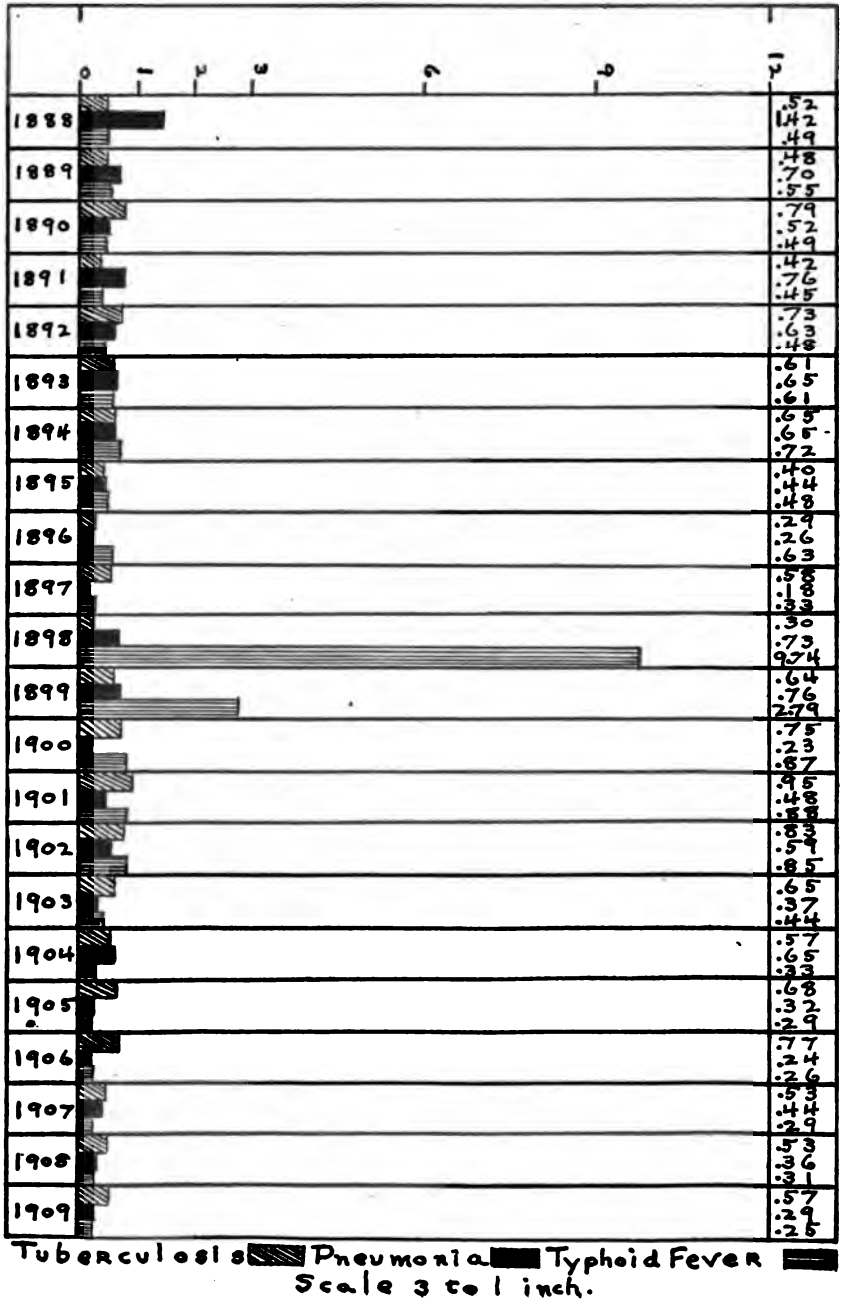

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TABLE No. 4.—*Venereal diseases—Admissions and discharges, Army, 1909.*

(Mean strength, 74,319.)

	Syphilis.		Chancroids.		Gonorrhea.		Total.	
	Admissions.	Discharges.	Admissions.	Discharges.	Admissions.	Discharges.	Admissions.	Discharges.
United States	1,534	121	1,447	.....	7,156	84	10,137	205
Alaska	7	.....	7	.....	43	.....	57	.....
Cuba	14	.....	27	.....	82	.....	123	.....
Hawaii	60	1	26	.....	143	.....	229	1
Philippines	592	.....	733	.....	2,552	.....	3,877	.....
Transports	56	.....	47	.....	114	.....	217	.....
Total	2,263	122	2,287	.....	10,090	84	14,640	206
Ratios per 1,000 of mean strength	30.45	1.62	30.77	.....	135.77	1.11	196.99	2.73

Days	354,508
Constantly sick	971.25
Ratio per 1,000	13.05

TUBERCULOSIS AND MALARIA.

The admission rate for tuberculosis, 4.70, is somewhat greater than for the preceding year, but closely approximates the mean rate for the last decade, 4.65. A general discussion of this question will be found in connection with the occurrence of tuberculosis in the United States, page 54.

The decrease in prevalence of malarial infection has been steadily maintained since the knowledge of its method of transmission made possible the intelligent application of preventive measures. This is well shown by Chart Q, on page 52, for the United States proper. The admission rate for the whole army in 1909 was 38.42, that for the preceding year being 46.33, and the mean rate for the past decade 242.60.

DISCHARGES—INFLUENCE OF STATIONS ON TROOPS.

All discharges are now made in the United States, except for the Porto Rican regiment and the Philippine Scouts, but the discharges and deaths occurring in the United States of soldiers invalided home from foreign service and whose organizations were serving abroad at the time have been credited to the country from which the soldier was invalided. There remains, however, a considerable number of deaths and discharges which can only be assigned to the place where they occur, though the diseases which led to these terminations were contracted abroad.

Regarding the comparative healthfulness of various countries in which the American troops were serving during the year (not including Cuba), it will be noted in Table No. 3, page 15, that Alaska had, as usual, the lowest admission, discharge, death, and noneffective rates; the United States, continental, the second lowest admission and noneffective rates and the highest discharge rate; the Philippines the second lowest discharge rate and the highest admission and death rates; and Hawaii has the second lowest death rate and the highest noneffective rate.

The charts on pages 24 and 25 give a summary of the health of the army, by countries in which it was stationed, during the year:

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CHART G.—*Showing the relative admission and death ratios per thousand of mean strength for tuberculosis in the army, by years, since 1897.*

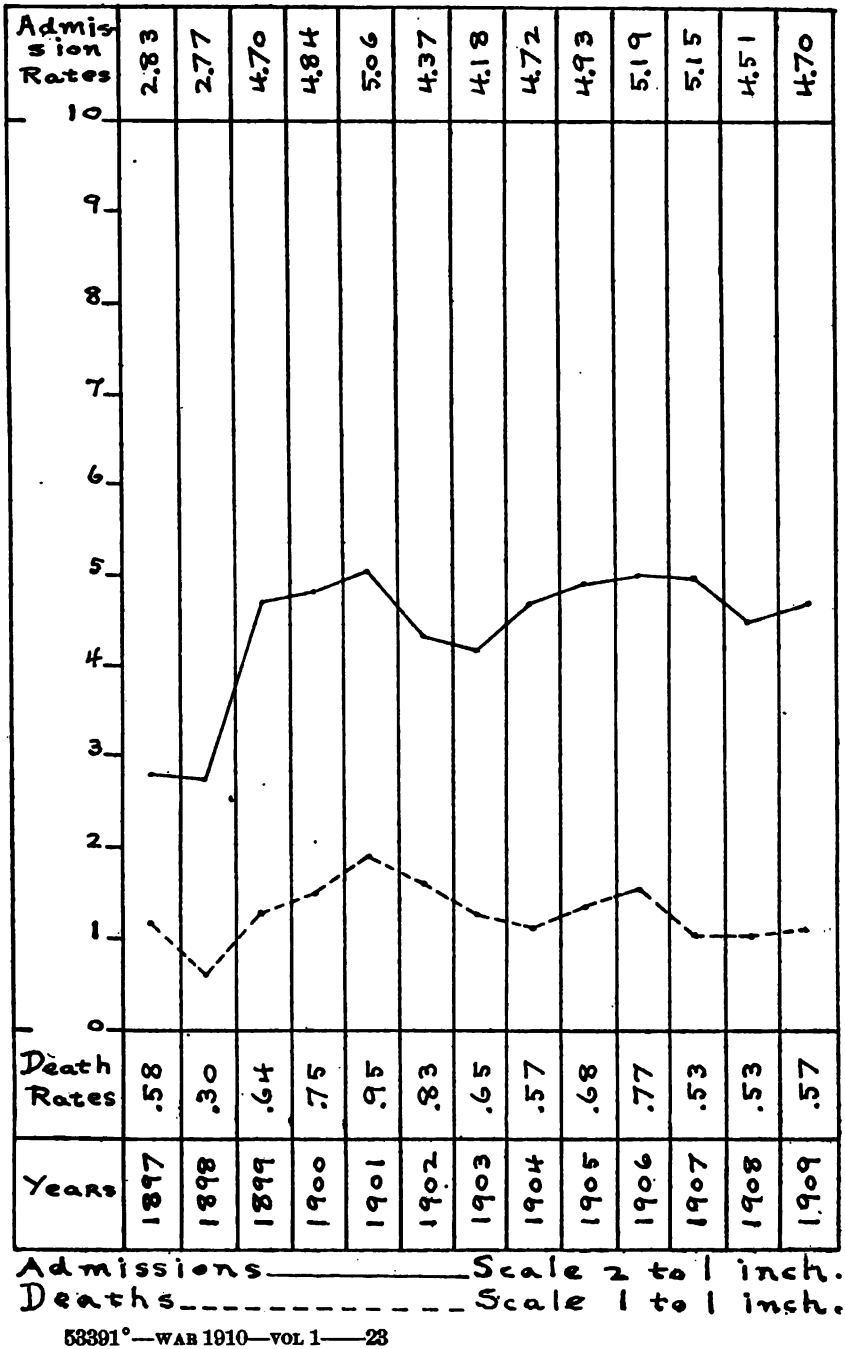

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CHART H.—*Showing the relative admission, death, discharge, and noneffective rates per thousand of mean strength for disease, by countries.*

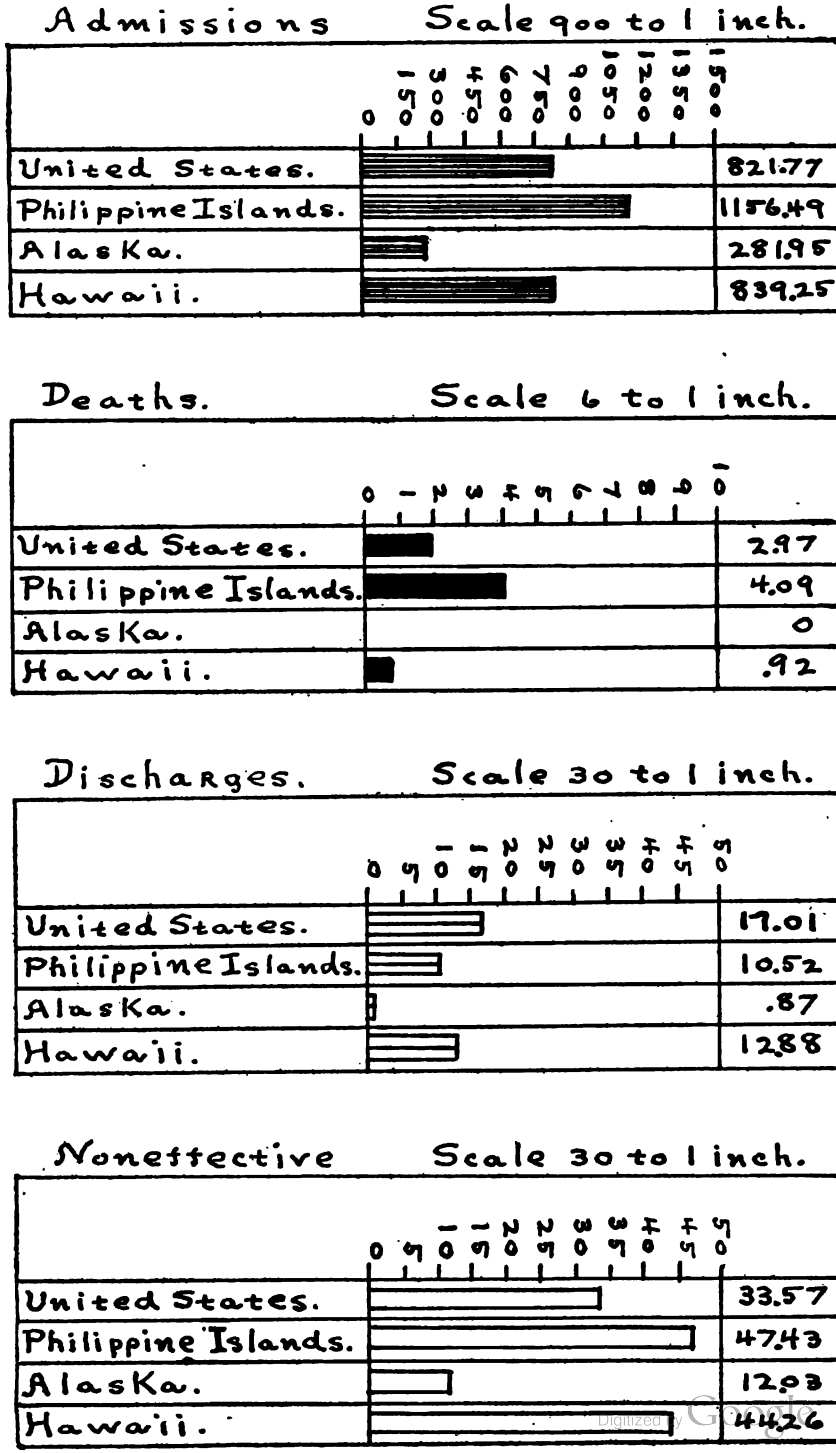

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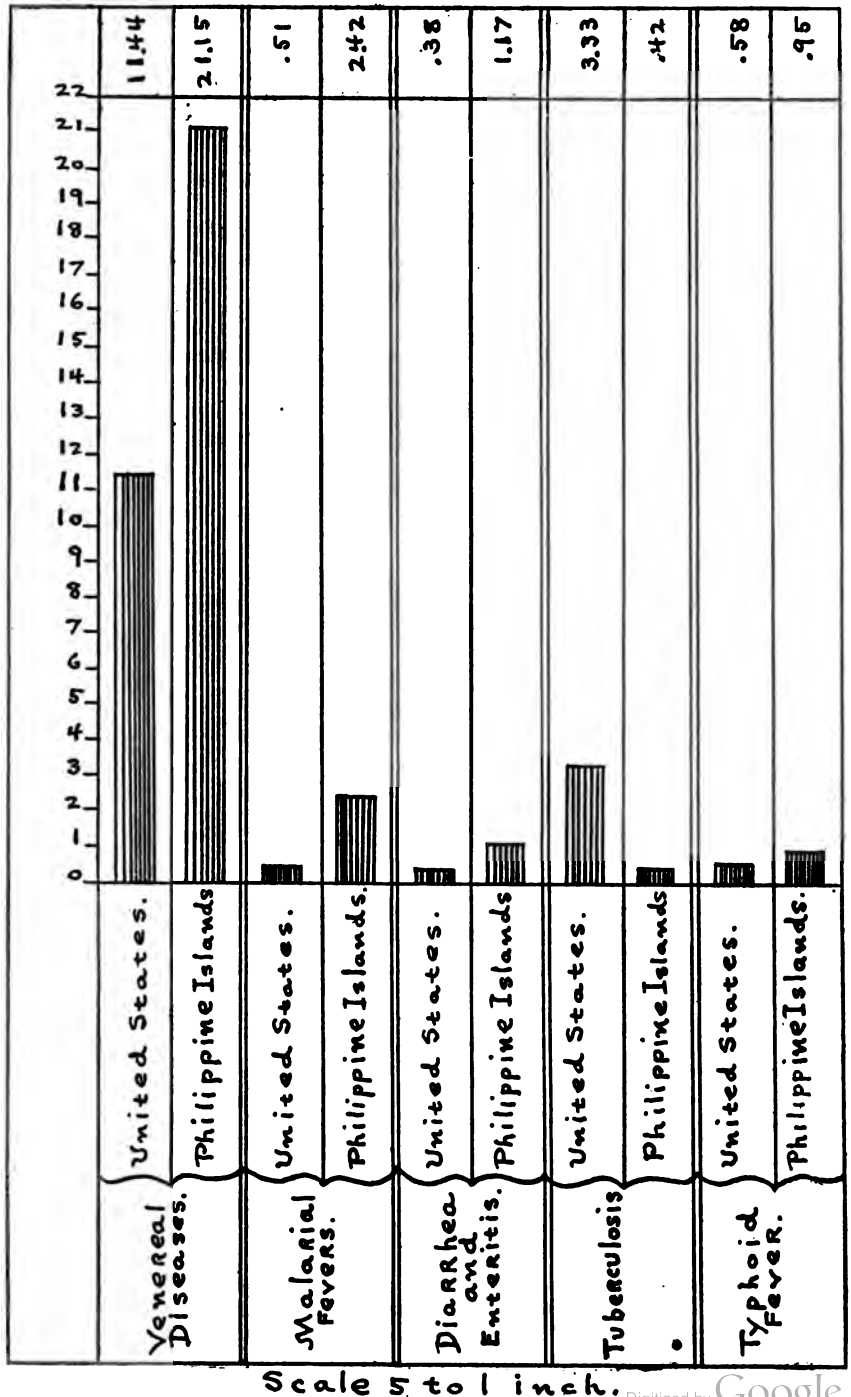
CHART I.—*Showing the relative noneffective ratios per thousand of mean strength of certain special diseases in the United States and the Philippine Islands.*



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INFLUENCE OF ARM OF SERVICE.

(See International Tables III and VII.)

In these comparisons the enlisted men of the Ordnance Department and Signal Corps are not considered on account of their small number and the special character of their service.

The admission rate was highest for the cavalry and lowest for the Hospital Corps; the death rate was highest in the Field Artillery and lowest in the cavalry.

The following table shows the relative frequency of the occurrence of the more important diseases for the various arms of the service, the figure 1 indicating the highest ratio and 6 the lowest in each case for each arm:

TABLE NO. 5.—*The relative frequency of occurrence of certain important diseases by arms of service, United States Army, year 1909.*

Arms of service.	Most important diseases.											
	Venereal.	Tonsillitis and pharyngitis.	Diarrhea and enteritis.	Malaria.	Bronchitis.	Alcoholism.	Rheumatism, articular.	Dysentery.	Tuberculosis.	Typhoid fever.	Pneumonia.	Injuries.
Cavalry	1	4	3	1	2	6	6	3	4	5	5	1
Field Artillery	3	1	5	2	5	5	1	5	5	1	6	3
Coast Artillery	4	2	4	6	1	1	5	6	6	6	4	2
Infantry	2	3	2	4	4	3	3	2	3	3	3	4
Engineers	5	6	1	3	6	4	2	1	2	2	1	5
Hospital Corps	6	5	6	5	3	2	4	4	1	4	2	6

INFLUENCE OF RACE.

(See Tables 59, 62, and 66.)

These tables show that the white troops had the highest rate for admission to hospital, the colored troops for discharges on certificate of disability and for total losses; the Porto Rican troops for the number of days treated and for deaths. The death rate for white troops was 4.80, the Filipino was 7.40, the colored 7.29, and the Porto Ricans 12.35.

The admission rate for venereal diseases was one-third larger for the colored race than for the white, while for the Filipino it was less than one-fourth that for the white troops. Malarial fever was about the same for the white as for the colored, but the rate for this disease was much larger for the Filipino troops, an incidence which is explained in another place. Next to malarial fever, beriberi was the most prevalent disease among Filipino soldiers, with an admission rate of 103.93, while only two cases occurred among the white troops and one among the colored.

The incidence of tuberculosis was greatest for the Filipino, next for the colored, and lowest for the whites. For typhoid fever and dysentery the rates were highest for the whites, next for the colored, and lowest for the Filipino troops.

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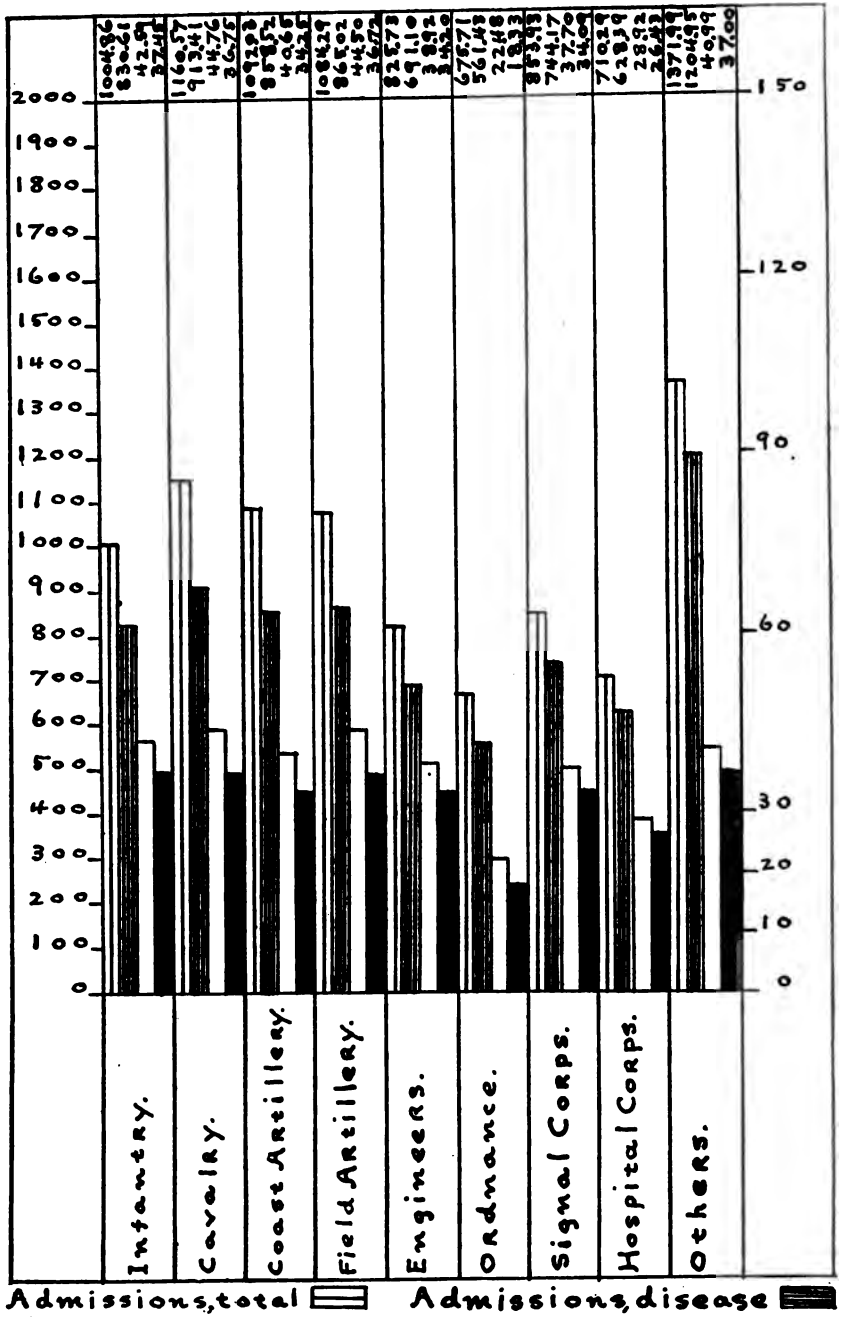
CHART J.—*Showing the relative admission and noneffective ratio per thousand of mean strength, by arms of service, for the army.*



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COMPARISON WITH FOREIGN ARMIES.

An effort is made in Charts K, L, and M and Tables Nos. 67 and 68 to make a comparison of the data available in the annexes to the annual reports of the medical departments of the armies of a number of foreign governments. There are, however, so many factors which are peculiar to each country that an accurate comparison is impossible. For example, in most foreign services many of the minor ailments, which in the United States Army are treated in quarters and recorded with the same accuracy and care as in hospital cases, are not made of record in the medical reports.

These tables show that the admission rates for alcoholism and venereal diseases taken together are much higher in the United States Army than in any foreign army included in the tables. This is also true of venereal diseases with the exception of syphilis, for which the admission rate is 35.1 in the British army, as compared with 26.85 in our army. For malaria, the admission rate as compared with the United States is higher in the British, Russian, Japanese, and Spanish, and much lower in the French, Prussian, Bavarian, Austrian, and Belgian. Typhoid fever is higher in the British, French, Russian, and more than twice as high in the Japanese. Pneumonia, lobar, is higher in the Bavarian, Prussian, Austrian, Russian, Japanese, Dutch, French, and English. Pulmonary tuberculosis is higher in the Spanish, French, Japanese, and Dutch. Diseases of the heart are higher in Spanish, Austrian, Belgian, Russian, British, French, and Prussian. For mental diseases our rate is the highest, being 2.04 for colored and 1.62 for white troops.

It will be noticed that in these tables the figures for the American troops are for the year 1909, for the British 1908, for the Dutch 1905, and for all others 1907.

SURGICAL OPERATIONS.

On page 170 will be found Table No. 58 of the principal surgical operations performed by medical officers upon officers and enlisted men; operations upon families of officers and enlisted men who are entitled to treatment at army posts are not included. In 3,933 operations there were only 23 failures, with 30 deaths. The anaesthetic used was ether 1,326 cases, chloroform 335, chloroform and ether 100, local 1,873, and none 299.

One hundred and seventy-six operations were performed for appendicitis, with 4 deaths; 174 operations for inguinal hernia, with 1 death; 6 for ventral, 1 for umbilical, and 3 for femoral, with no deaths; 10 exploratory laparotomies, with 2 deaths; 22 operations for abscess of the liver, with 5 deaths; 15 operations on the gall bladder, with 1 death; 16 operations for empyema, with 3 deaths, and 3 operations for peritonitis, purulent, with 1 death.

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CHART K.—*Showing a comparison with foreign armies of the relative total loss, death, and discharge ratios per thousand of mean strength.*

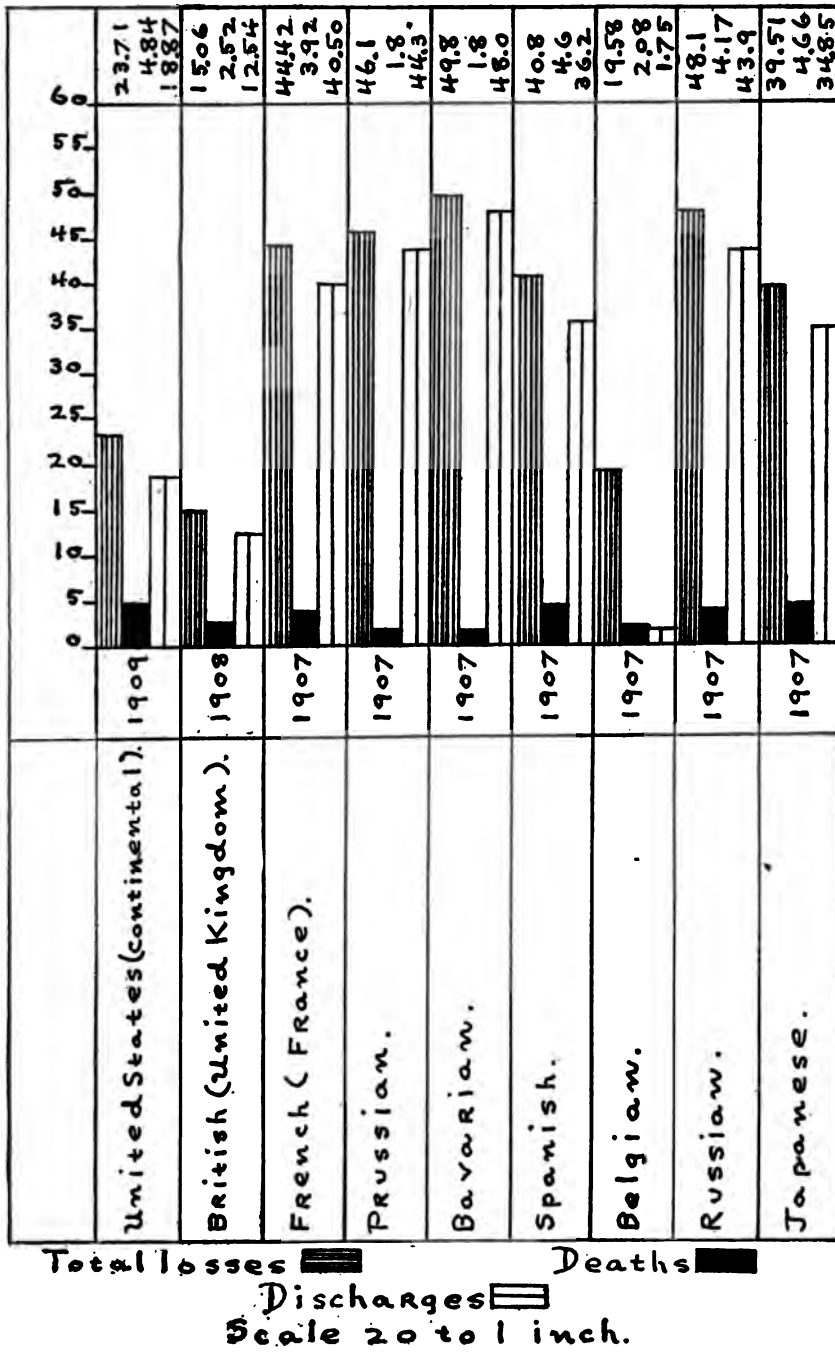

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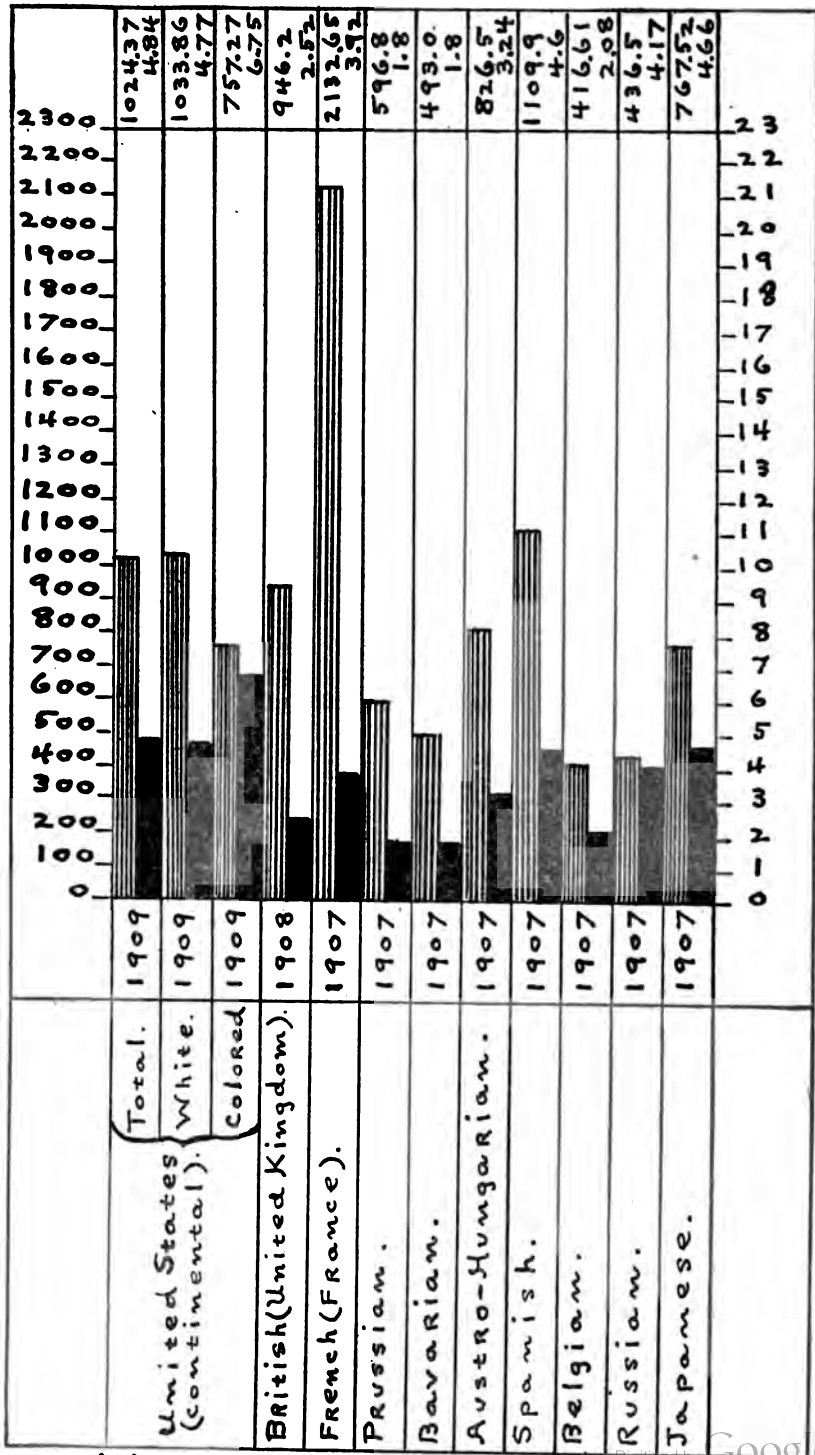
CHART L.—*Showing a comparison with foreign armies of the relative admission and death ratios per thousand of mean strength.*



Admissions ▤ Deaths ■

Belgian for Hospital only.

Admissions scale on left. Deaths scale on right.

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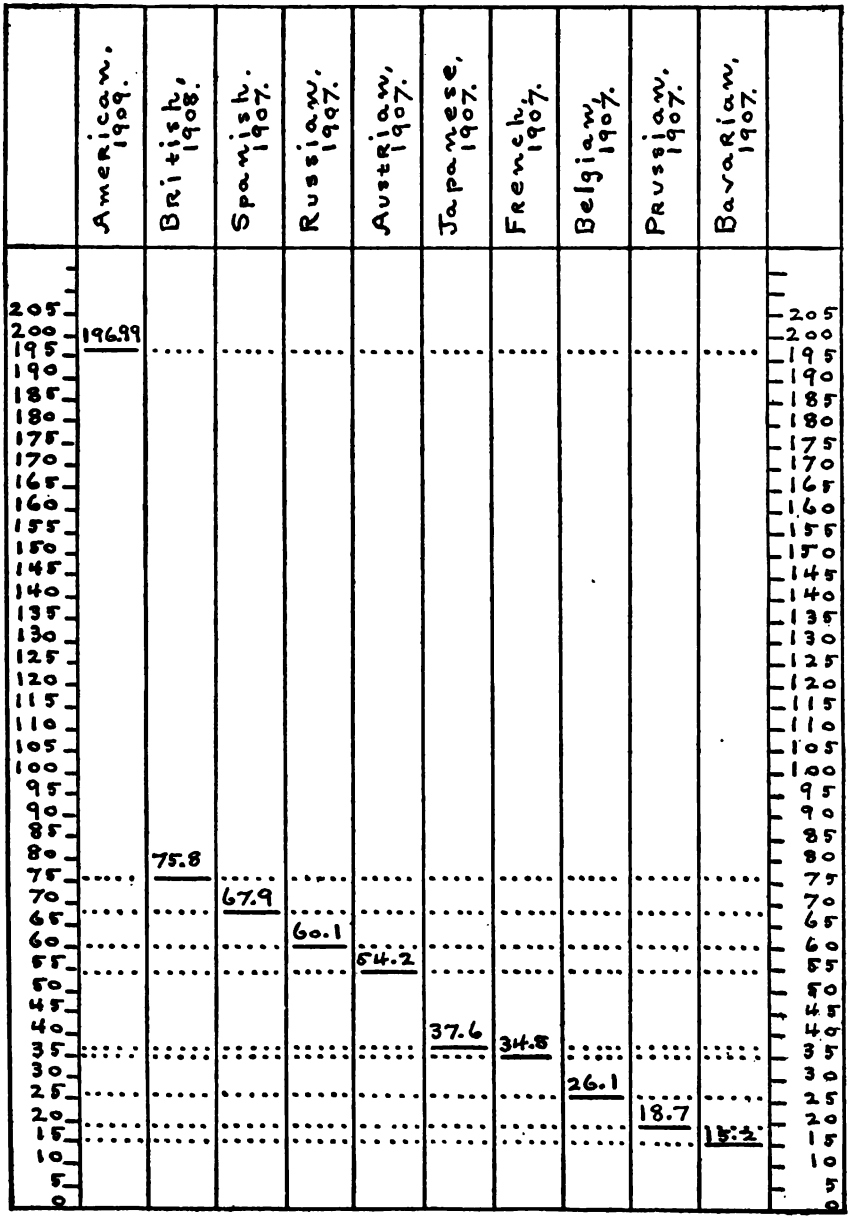
CHART M.—*Showing a comparison with foreign armies of the relative admission ratios per thousand of mean strength for venereal diseases.*



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RECRUITING.

The movement of recruits is shown in Table No. 6. Each recruit was given a thorough physical examination by a medical officer of the army. On account of the reduction in the size of the army for 1910 the number of recruits examined by medical officers during the year 1909 was 23,520, as compared with 54,885 for the preceding year.

TABLE No. 6.—*Movement of recruits, white and colored.*

	White.		Colored.		Total.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Examined by medical officers	22,613	1,000.00	907	1,000.00	23,520	1,000.00
Accepted by medical officers	18,811	831.87	774	853.36	19,585	832.69
By first enlistment	10,719	474.02	313	345.09	11,032	469.04
By all other enlistments	8,092	357.85	461	508.27	8,553	363.65
Rejected by medical officers	[a] 3,243	143.41	[a] 113	124.59	[a] 3,356	142.69
Declined	559	24.72	20	22.05	579	24.62

[a] Of this number 275 (265 white and 10 colored) were rejected for causes not physical.

This table shows only the applicants who had previously passed the scrutiny of the recruiting officers, and who were therefore picked men. The number of examinations and of rejections by recruiting officers is not known to this office, but was, of course, much larger. The present recruiting system operates in a highly satisfactory manner and furnishes to the army recruits of excellent quality.

Table No. 7 shows the nativity of accepted recruits for the year:

TABLE No. 7.—*Nativities of accepted recruits, American Army, 1909.*

Country of birth.	Accepted recruits, year 1909.	
	Number.	Ratios per 1,000 of total accepted.
United States:		
White	16,060	820.02
Colored	774	39.52
Total native born	16,834	859.54
Germany	623	31.81
Ireland	478	24.41
Russia	302	15.42
Austria	263	13.43
England	236	12.05
Canada	182	9.29
Scandinavia	173	8.83
Hungary	95	4.85
Italy	86	4.39
Denmark	58	2.96
Switzerland	50	2.55
Scotland	48	2.45
Holland	32	1.63
France	21	1.07
Others	104	5.31
Total foreign born	2,751	140.46
Grand total	19,585	1,000.00

The number of foreign-born recruits is less than last year, the ratio being 140.46, as compared with 149.09 for 1908. There was a decrease in the proportion of recruits from Ireland, Russia, Roumania, and Hungary, and an increase of about 3 per cent from Germany.

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The following tables have been carefully compiled and are of interest, as they show the state of physical development of the men admitted to the army during the year.

The ages of all the recruits accepted, white and colored, and the proportion at each age per 1,000 are shown in this statement.

TABLE No. 8.—*Ages of recruits, white and colored, and the proportion at each age per 1,000 accepted.*

Age.	White.		Colored.		Total.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
18 years and under	1,109	58.95	23	29.72	1,132	57.80
19 years	703	37.37	15	19.38	718	36.66
20 years	458	24.35	13	16.80	471	24.05
21 years	3,669	195.05	85	109.82	3,754	191.68
22 years	1,730	91.97	47	60.72	1,777	90.74
23 years	1,120	59.54	37	47.80	1,157	59.08
24 years	1,617	85.96	67	86.56	1,684	85.98
25 years	1,183	62.89	52	67.18	1,235	63.06
26 years	933	49.60	48	62.01	981	50.09
27 years	923	49.07	37	47.80	960	49.02
28 years	735	39.07	37	47.80	772	39.42
29 years	705	37.48	40	51.68	745	38.04
30 years	580	30.83	45	58.14	625	31.92
31 years	413	21.96	31	40.05	444	22.67
32 years	433	23.02	30	38.76	463	23.64
33 years	374	19.88	20	25.84	394	20.12
34 years	272	14.46	23	29.72	295	15.06
35 years	209	11.11	12	15.50	221	11.28
36 years	184	9.78	15	19.38	199	10.16
37 years	192	10.21	19	24.55	211	10.77
38 years	185	9.83	15	19.38	200	10.21
39 years	162	8.61	11	14.21	173	8.83
40 years and over	922	49.01	52	67.18	974	49.73
Total	18,811	1,000.00	774	1,000.00	19,585	1,000.00

The proportion of accepted recruits under the age of 24 has noticeably diminished in comparison with last year, being due undoubtedly to the much larger proportion of reinlistments.

The series of tables which follow show separately for each race the heights of accepted recruits for the year and the proportion of each height per 1,000; also, in absolute and proportional numbers, the relation of height to age:

TABLE No. 9.—*Relation of height to age.*

ABSOLUTE NUMBERS—WHITE TROOPS.

Height.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
5 feet 1 inch and under	1								6	7
5 feet 2 inches				3	3		3		14	23
5 feet 3 inches	13	4	5	28	18	8	12	9	72	169
5 feet 4 inches	74	53	36	214	93	78	97	72	458	1,175
5 feet 5 inches	156	81	63	417	185	123	163	120	789	2,097
5 feet 6 inches	224	122	70	524	247	141	238	164	1,089	2,819
5 feet 7 inches	205	123	97	652	284	207	283	211	1,290	3,352
5 feet 8 inches	185	127	73	613	295	181	255	213	1,185	3,127
5 feet 9 inches	134	90	55	526	238	158	225	150	910	2,486
5 feet 10 inches	68	51	31	328	181	109	174	127	660	1,729
5 feet 11 inches	32	26	20	184	98	57	74	56	364	911
6 feet	13	19	4	125	65	34	59	37	262	618
6 feet 1 inch	3	5	1	32	16	14	22	16	75	184
6 feet 2 inches and over	1	2	3	23	7	10	12	8	48	114
Total	1,109	703	458	3,669	1,730	1,120	1,617	1,183	7,222	18,811

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TABLE No. 9.—*Relation of height to age*—Continued.

PROPORTIONAL NUMBERS—WHITE TROOPS.

Height.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
5 feet 1 inch and under	0.90	.....	.....	.....	.....	.....	.....	.....	0.83	0.37
5 feet 2 inches	.....	.....	.....	0.82	1.73	.....	1.86	.....	1.94	1.22
5 feet 3 inches	11.72	5.69	10.92	7.63	10.40	7.14	7.42	7.61	9.97	8.98
5 feet 4 inches	66.73	75.39	78.60	58.33	53.76	69.64	59.99	60.86	63.42	62.46
5 feet 5 inches	140.67	115.22	137.55	113.65	106.94	109.82	100.80	101.44	109.25	111.48
5 feet 6 inches	201.98	173.54	152.84	142.82	142.77	125.89	147.19	138.63	150.79	149.86
5 feet 7 inches	184.85	174.96	211.79	177.71	164.16	184.82	175.02	178.36	178.62	178.19
5 feet 8 inches	166.82	180.65	159.39	167.08	170.52	161.60	157.70	180.05	164.08	166.23
5 feet 9 inches	120.83	128.02	120.09	143.36	137.57	141.07	139.15	126.80	126.00	132.16
5 feet 10 inches	61.32	72.55	67.69	89.40	104.62	97.32	107.61	107.35	91.39	91.91
5 feet 11 inches	28.85	36.98	43.67	50.15	56.65	50.89	45.76	47.34	50.40	48.43
6 feet	11.72	27.03	8.73	34.07	37.57	30.36	36.49	31.28	36.28	32.85
6 feet 1 inch	2.71	7.11	2.18	8.72	9.25	12.50	13.61	13.52	10.38	9.78
6 feet 2 inches and over	.90	2.84	6.55	6.27	4.05	8.93	7.42	6.76	6.65	6.06
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

TABLE No. 10.—*Relation of height to age.*

ABSOLUTE NUMBERS—COLORED TROOPS.

Height.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
5 feet 1 inch and under	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 feet 2 inches	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 feet 3 inches	.....	.....	1	1	.....	1	.....	.....	4	7
5 feet 4 inches	3	2	1	7	3	3	5	3	29	56
5 feet 5 inches	.....	2	1	10	11	6	9	4	57	100
5 feet 6 inches	10	1	3	15	11	7	12	10	51	120
5 feet 7 inches	5	4	.....	17	4	11	8	9	81	139
5 feet 8 inches	.....	4	5	15	9	3	12	9	73	130
5 feet 9 inches	3	2	.....	11	4	3	11	8	71	113
5 feet 10 inches	2	.....	1	4	2	1	5	5	33	53
5 feet 11 inches	.....	.....	1	2	3	.....	3	2	25	36
6 feet	.....	.....	.....	3	.....	.....	1	1	9	14
6 feet 1 inch	.....	.....	.....	.....	.....	.....	1	.....	1	2
6 feet 2 inches and over	.....	.....	.....	.....	.....	2	.....	1	1	4
Total	23	15	13	85	47	37	67	52	435	774

PROPORTIONAL NUMBERS—COLORED TROOPS.

5 feet 1 inch and under	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 feet 2 inches	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5 feet 3 inches	.....	.....	76.92	11.76	.....	27.03	.....	.....	9.20	9.04
5 feet 4 inches	130.43	133.33	76.92	82.35	63.83	81.08	74.63	57.69	66.67	72.36
5 feet 5 inches	.....	133.33	76.92	117.65	234.04	162.16	134.33	76.92	131.03	129.20
5 feet 6 inches	434.78	66.67	230.77	176.47	234.04	189.19	179.10	192.31	117.24	155.04
5 feet 7 inches	217.39	266.67	.....	200.00	85.11	297.30	119.40	173.08	186.21	179.59
5 feet 8 inches	.....	266.67	384.62	176.47	191.49	81.08	179.10	173.08	167.82	167.96
5 feet 9 inches	130.43	133.33	.....	129.41	85.11	81.08	164.18	153.85	163.22	145.99
5 feet 10 inches	86.96	.....	76.92	47.06	42.55	27.03	74.63	96.15	75.86	68.47
5 feet 11 inches	.....	.....	76.92	23.53	63.83	.....	44.78	38.46	57.47	46.51
6 feet	.....	.....	.....	35.29	.....	.....	14.93	19.23	20.69	18.09
6 feet 1 inch	.....	.....	.....	.....	.....	.....	14.93	.....	2.30	2.58
6 feet 2 inches and over	.....	.....	.....	.....	.....	54.05	.....	19.23	2.30	5.17
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

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It will be noted that 48.74 per cent of the white recruits were 5 feet 8 inches or over, and 1.06 per cent were under the minimum height of 5 feet 4 inches, as compared with 45.77 and 1.46 for the previous year.

For colored troops, 45.48 per cent were 5 feet 8 inches or over, and 0.09 per cent were under the minimum height, as compared with 44.18 and 1.46.

The average height for white recruits was 5 feet 7.6 inches; for colored, 5 feet 7 inches.

The following tables show separately for each race the weights of accepted recruits and the proportion of each weight per 1,000; also the relation of weight to age in both absolute and proportional numbers:

TABLE No. 11.—*Relation of weight to age.*

ABSOLUTE NUMBERS—WHITE TROOPS.

Weight.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
119 pounds and under	27	14	6	26	14	9	16	13	118	243
120 to 124 pounds	164	62	53	257	95	58	59	51	258	1,057
125 to 129 pounds	210	136	71	395	149	94	126	87	502	1,770
130 to 134 pounds	211	116	77	536	221	134	184	131	683	2,293
135 to 139 pounds	192	122	73	552	262	150	198	156	845	2,550
140 to 144 pounds	98	84	59	541	270	177	260	179	892	2,560
145 to 149 pounds	108	73	41	478	220	140	191	158	873	2,277
150 to 154 pounds	46	45	30	342	194	94	175	119	702	1,747
155 to 159 pounds	25	25	19	208	109	97	134	91	592	1,300
160 to 164 pounds	15	13	11	143	76	56	95	79	425	913
165 to 169 pounds	8	4	5	85	46	36	80	37	357	658
170 to 174 pounds	7	2	11	48	27	31	41	34	253	454
175 to 179 pounds	1	2	1	24	24	21	20	21	214	328
180 pounds and over	2	5	1	34	23	23	38	27	508	661
Total	1,109	703	458	3,669	1,730	1,120	1,617	1,183	7,222	18,811

PROPORTIONAL NUMBERS—WHITE TROOPS.

119 pounds and under	24.35	19.91	13.10	7.09	8.09	8.04	9.89	10.99	16.34	12.92
120 to 124 pounds	147.88	88.19	115.72	70.04	54.91	51.79	36.49	43.11	35.72	56.19
125 to 129 pounds	189.37	193.46	155.02	107.66	86.13	83.93	77.92	73.54	69.51	94.09
130 to 134 pounds	190.26	165.01	168.12	146.09	127.75	119.64	113.79	110.74	94.57	121.90
135 to 139 pounds	173.12	173.54	159.39	150.45	151.45	133.93	122.45	131.87	117.00	135.56
140 to 144 pounds	88.37	119.49	128.82	147.45	156.07	158.04	160.79	151.31	123.51	136.09
145 to 149 pounds	92.88	103.84	89.52	130.28	127.17	125.00	118.12	133.56	120.88	121.05
150 to 154 pounds	41.48	64.01	65.50	93.21	112.14	83.93	108.23	100.59	97.21	92.87
155 to 159 pounds	22.54	35.56	41.48	56.69	63.01	86.61	82.87	76.92	81.97	69.11
160 to 164 pounds	13.53	18.49	24.02	38.98	43.93	50.00	58.76	66.78	58.85	48.54
165 to 169 pounds	7.21	5.69	10.92	23.17	26.59	32.14	49.47	31.28	49.43	34.98
170 to 174 pounds	6.31	2.84	24.02	13.08	15.61	27.68	25.36	28.74	35.03	24.13
175 to 179 pounds	.90	2.84	2.18	6.54	13.87	18.75	12.37	17.75	29.63	17.44
180 pounds and over	1.80	7.11	2.18	9.27	13.29	20.54	23.50	22.82	70.34	35.14
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

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TABLE No. 12.—*Relation of weight to age.*

ABSOLUTE NUMBERS—COLORED TROOPS.

Weight.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
119 pounds and under	.....	.....	.....	1	.....	.....	.....	2	2	5
120 to 124 pounds	3	4	.....	5	.....	3	4	1	9	29
125 to 129 pounds	4	.....	4	7	9	5	2	4	17	52
130 to 134 pounds	6	2	1	16	6	2	7	7	32	79
135 to 139 pounds	3	2	1	12	5	7	10	6	63	109
140 to 144 pounds	1	1	4	12	8	4	10	6	61	107
145 to 149 pounds	3	3	2	12	8	6	9	8	51	102
150 to 154 pounds	1	1	1	8	5	4	7	4	47	78
155 to 159 pounds	.....	1	.....	3	1	1	4	4	43	57
160 to 164 pounds	1	1	.....	3	4	2	3	3	34	51
165 to 169 pounds	.....	.....	.....	2	1	.....	6	1	26	36
170 to 174 pounds	1	.....	.....	2	.....	1	.....	3	17	24
175 to 179 pounds	.....	.....	.....	.....	.....	.....	2	1	11	14
180 pounds and over	.....	.....	.....	2	.....	2	3	2	22	31
Total	23	15	13	85	47	37	67	52	435	774

PROPORTIONAL NUMBERS—COLORED TROOPS.

119 pounds and under	.....	.....	.....	11.76	.....	.....	.....	38.46	4.60	6.46
120 to 124 pounds	130.43	266.67	.....	58.82	.....	81.08	59.70	19.23	20.69	37.47
125 to 129 pounds	173.91	.....	307.69	82.35	191.49	135.14	29.85	76.92	39.08	67.18
130 to 134 pounds	260.87	133.33	76.92	188.24	127.66	54.05	104.48	134.62	73.56	102.07
135 to 139 pounds	130.43	133.33	76.92	141.18	106.38	189.19	149.25	115.38	144.83	140.83
140 to 144 pounds	43.48	66.67	307.69	141.18	170.21	108.11	149.25	115.38	140.23	138.24
145 to 149 pounds	130.43	200.00	153.85	141.18	170.21	162.16	134.33	153.85	117.24	131.78
150 to 154 pounds	43.48	66.67	76.92	94.12	106.38	108.11	104.48	76.92	108.05	100.77
155 to 159 pounds	.....	66.67	.....	35.29	21.28	27.03	59.70	76.92	98.85	73.64
160 to 164 pounds	43.48	66.67	.....	35.29	85.11	54.05	44.78	57.69	78.16	65.89
165 to 169 pounds	.....	.....	.....	23.53	21.28	.....	89.55	19.23	59.77	46.51
170 to 174 pounds	43.48	.....	.....	23.53	.....	27.03	.....	57.69	39.08	31.01
175 to 179 pounds	.....	.....	.....	.....	.....	.....	29.85	19.23	25.29	18.09
180 pounds and over	.....	.....	.....	23.53	.....	54.05	44.78	38.46	50.57	40.05
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

The average weight of white recruits was 144.8 pounds; of colored recruits, 147.2 pounds; the average weight of all recruits was 144.9.

Fifth-seven and ninety-four one-hundredths per cent of the white troops weighed 140 pounds or over, while 1.29 per cent weighed less than the minimum, 120 pounds, as compared with 54.21 and 2.04 per cent for the previous year. Sixty-four and sixty one-hundredths per cent of the colored troops weighed 140 pounds or over, and only 0.65 per cent less than 120 pounds, compared with 69.4 and 0.68 for 1908. These tables show that the colored recruits were heavier than the white recruits of the same age.

The next tables show separately for each race the chest measurement of accepted recruits and the proportion of each measurement per 1,000; also the chest measurement in relation to age in both absolute and proportional numbers:

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TABLE No. 13.—*Relation of chest measurement to age.*

ABSOLUTE NUMBERS—WHITE TROOPS.

Chest measurement.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
30 inches and under.	80	39	26	131	28	20	22	24	108	478
31 inches	230	128	75	384	145	103	115	88	390	1,658
32 inches	336	192	110	815	374	211	286	199	973	3,496
33 inches	238	155	99	891	445	245	359	273	1,488	4,193
34 inches	141	101	79	675	377	219	363	273	1,468	3,696
35 inches	61	50	43	449	196	170	246	164	1,071	2,450
36 inches	19	28	18	221	97	83	130	92	730	1,418
37 inches	3	6	7	69	44	47	61	48	438	723
38 inches	.....	2	1	28	15	17	21	16	285	385
39 inches and over	1	2	.....	6	9	5	14	6	271	314
Total	1,109	703	458	3,669	1,730	1,120	1,617	1,183	7,222	18,811

PROPORTIONAL NUMBERS—WHITE TROOPS.

30 inches and under.	72.14	55.48	56.77	35.70	16.18	17.86	13.61	20.29	14.95	25.41
31 inches	207.39	182.06	163.76	104.66	83.82	91.96	71.12	74.39	54.00	88.14
32 inches	302.97	273.11	240.17	222.13	216.18	188.39	176.87	168.22	134.73	185.85
33 inches	214.61	220.51	216.16	242.85	257.23	218.75	222.02	230.77	206.04	222.90
34 inches	127.14	143.66	172.49	183.97	217.92	195.54	224.49	230.77	203.27	196.48
35 inches	55.00	71.12	93.89	122.38	113.30	151.79	152.13	138.63	148.30	130.24
36 inches	17.13	39.83	39.30	60.23	56.07	74.11	80.40	77.77	101.08	75.38
37 inches	2.71	8.53	15.28	18.81	25.43	41.96	37.73	40.57	60.65	38.43
38 inches	.....	2.84	2.18	7.63	8.67	15.18	12.99	13.52	39.46	20.47
39 inches and over	.90	2.84	.....	1.64	5.20	4.46	8.66	5.07	37.52	16.69
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

TABLE No. 14.—*Relation of chest measurement to age.*

ABSOLUTE NUMBERS—COLORED TROOPS.

Chest measurement.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
30 inches and under.	2	2	1	2	.....	.....	2	1	3	13
31 inches	4	2	3	6	6	3	2	5	25	56
32 inches	6	3	4	22	9	13	10	9	55	131
33 inches	5	3	3	23	10	6	13	12	85	160
34 inches	4	2	1	11	11	5	17	11	92	154
35 inches	.....	2	1	10	7	5	10	6	72	113
36 inches	2	.....	.....	6	4	3	11	3	55	84
37 inches	.....	.....	.....	4	.....	1	1	.....	24	30
38 inches	.....	1	.....	1	.....	.....	1	3	13	19
39 inches and over	.....	.....	.....	.....	.....	1	.....	2	11	14
Total	23	15	13	85	47	37	67	52	435	774

PROPORTIONAL NUMBERS—COLORED TROOPS.

30 inches and under.	86.96	133.33	76.92	23.53	.....	.....	29.85	19.23	6.90	16.80
31 inches	173.91	133.33	230.77	70.59	127.66	81.08	29.85	96.15	57.47	72.36
32 inches	260.87	200.00	307.69	258.82	191.49	351.35	149.25	173.08	126.44	169.25
33 inches	217.39	200.00	230.77	270.59	212.77	162.16	194.03	230.77	195.40	206.72
34 inches	173.91	133.33	76.92	129.41	234.04	135.14	253.73	211.54	211.49	198.97
35 inches	.....	133.33	76.92	117.65	148.94	135.14	149.25	115.38	165.52	145.99
36 inches	86.96	.....	.....	70.59	85.11	81.08	164.18	57.69	126.44	108.53
37 inches	.....	.....	.....	47.06	.....	27.03	14.93	.....	55.17	38.76
38 inches	.....	66.67	.....	11.76	.....	.....	14.93	57.69	29.89	24.55
39 inches and over	.....	.....	.....	.....	.....	27.03	.....	38.46	25.29	18.09
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

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The chest measurement of 47.77 per cent of white recruits was 34 inches and over, and 2.54 per cent were 30 inches and under, compared with 45.74 and 3.41 per cent, respectively, for the previous year. The chest measurements for colored recruits show 53.49 per cent 34 inches or over and 1.68 per cent 30 inches and under, compared with 57.44 and 2.44 per cent, respectively, for 1908, the colored recruits showing to the advantage.

The following table shows the causes of rejection among white and colored candidates examined for enlistment during the year 1909, with ratios per 1,000 rejected:

TABLE No. 15.—*Causes of rejection of white and colored candidates examined for enlistment by medical officers of the army, 1909.*

Causes of rejection.	Total.		White.		Colored.	
	Number.	Ratios per 1,000 of all rejections for causes, physical and mental.	Number.	Ratios per 1,000 of all rejections for causes, physical and mental.	Number.	Ratios per 1,000 of all rejections for causes, physical and mental.
Venereal diseases	333	108.08	315	105.78	18	174.76
Heart disease	321	104.18	311	104.43	10	97.09
Diseases of the ear, including defects of hearing	291	94.44	285	95.70	6	58.25
Alcoholism	271	87.95	268	89.99	3	29.13
Diseases of the eye, including defects of vision	262	85.04	255	85.63	7	67.96
Flat feet	187	60.70	175	58.76	12	116.50
Under weight	127	41.22	126	42.31	1	9.71
Chest development insufficient	126	40.90	120	40.30	6	58.25
Defective teeth	122	39.60	113	37.94	9	87.38
Hernia	117	37.97	112	37.61	5	48.54
Injuries	107	34.73	105	35.26	2	19.42
Varicose veins, except as shown in detail	78	25.32	72	24.18	6	58.25
Diseases of the respiratory system	78	25.32	76	25.52	2	19.42
Defects of development, except as shown in detail	76	24.67	75	25.19	1	9.71
Tuberculosis	75	24.34	71	23.84	4	38.83
Curvature of the spine	64	20.77	64	21.49	.....	.....
Diseases of the skin	63	20.45	62	20.82	1	9.71
Varicocele	50	16.23	48	16.12	2	19.42
Hemorrhoids	49	15.90	48	16.12	1	9.71
Diseases of the genito-urinary system non-venereal	45	14.61	43	14.44	2	19.42
Diseases of the nervous system, except as shown in detail	36	11.68	36	12.09	.....	.....
Under height	35	11.36	34	11.42	1	9.71
Diseases of the digestive system, except as shown in detail	33	10.71	33	11.08	.....	.....
Weakness of mind	30	9.74	28	9.40	2	19.42
Physical debility	29	9.41	29	9.74	.....	.....
General diseases, except as shown in detail	28	9.09	28	9.40	.....	.....
Over weight and obesity	22	7.14	21	7.05	1	9.71
Diseases of the organs of locomotion, except spinal curvature	16	5.19	15	5.04	1	9.71
Diseases of the circulatory system, except as shown in detail	8	2.60	8	2.69	.....	.....
Over height	2	.65	2	.67	.....	.....
Rejected for causes physical and mental	3,081	918.06	2,978	918.29	103	911.50
Rejected for causes not physical or mental	275	81.94	265	81.71	10	88.50
Total	3,356	1,000.00	3,243	1,000.00	113	1,000.00

Venereal diseases caused the largest proportion of rejections, with heart disease second, and diseases of the ear, alcoholism, and diseases of the eye in the order given. Last year diseases of the eye (including

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defects of vision) headed the list with a ratio per 1,000 of 108.01, followed by venereal diseases 106.66 second. In the colored race the ratios for venereal diseases and flat-feet were considerably greater than like causes or any causes in the white race.

Table No. 16 shows the principal occupations of 11,032 recruits enlisted during the year.

TABLE No. 16.—*Occupations of soldiers, first enlisted, year 1909.*

Occupation.	Number in each class.			Occupation.	Number in each class.		
	Total.	White.	Colored.		Total.	White.	Colored.
Laborers	2,580	2,448	132	Mill workers	54	54	.....
Farmers	1,771	1,759	12	Tinners	52	51	1
Drivers and stablemen	711	699	12	Chauffeurs	47	44	3
Clerks	653	650	3	Boiler makers	43	43	.....
Carpenters	356	352	4	Linemen	43	43	.....
Machinists	335	335	.....	Mechanics	41	41	.....
Firemen	304	301	3	Motormen	38	38	.....
Miners	300	294	6	Druggists	34	34	.....
Painters	289	282	7	Glass workers	31	31	.....
Cooks	229	198	31	Lumbermen	31	31	.....
Musicians	199	193	6	Teachers	30	30	.....
Electricians	170	170	.....	Nurses	27	27	.....
Railroad hands	165	165	.....	Jewelers	27	27	.....
Plumbers	162	161	1	Leather workers	26	24	2
Metal workers	139	138	1	Packers	22	22	.....
Printers	137	135	2	Plasterers	22	18	4
Blacksmiths	129	127	2	Cigar makers	20	20	.....
Waiters	123	104	19	Paper workers	20	20	.....
Barbers	117	114	3	Stenographers	18	18	.....
Bakers	112	112	.....	Civil engineers	15	15	.....
Butchers	104	101	3	Merchants	14	14	.....
Tailors	102	97	5	Gardeners	14	13	1
Telegraphers	101	101	.....	Box makers	13	13	.....
Salesmen	99	99	.....	Conductors	13	13	.....
Engineers	94	94	.....	Florists	12	12	.....
Molders	77	76	1	Draftsmen	11	11	.....
Sailors	75	75	.....	Potters	10	10	.....
Shoemakers	73	73	.....	Photographers	10	10	.....
Porters	67	31	36	Miscellaneous others	298	286	12
Bookkeepers	56	56	.....				
Weavers	56	56	.....	Total	11,032	10,719	313
Students	56	55	1				
Brick and stone masons	55	55	.....				

DISCHARGES FOR DISABILITY.

Soldiers stationed outside the territorial limits of the United States are now brought to San Francisco for discharge, except those belonging to the Porto Rican regiment and the Philippine Scouts. They are, however, credited in the tabulated reports to the country in which the soldiers were serving when they became disabled. The progressive diminution in the discharge rate noted in my last report has continued, and has become more marked since the issue of General Order No. 174 of 1909, which requires that soldiers certified by medical officers to be permanently incapacitated for the military service shall be examined and observed by a board of three medical officers either at a recruit depot or a general hospital before being discharged. The reports of these boards are sent to the War Department and discharges for disability are now made only by authority of the Secretary of War. This order went into operation about the 1st of September, 1909, and as a result of it the discharges for the army during the last four months of the year averaged 59 per month, as compared with 128 per month for the preceding eight months.

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UNITED STATES (CONTINENTAL) EXCLUSIVE OF ALASKA.

The average mean strength of the troops serving in the United States was 57,124, of which 55,163 were white and 1,961 were colored.

Deaths, as well as discharges of soldiers which occurred in the United States, they having been invalided home from their commands in foreign service, have been charged to the country where such commands are stationed. The admission, discharge, death, and noneffective rates were all lower for 1909 than for 1908. There has been a gradual decrease in these rates, excepting the death rate, for several years. The admission rates for 1909, 1908, 1907, and 1906 were, respectively, 1,024.37, 1,148.59, 1,172.04, and 1,179.93; for discharges, 18.87, 21.35, 25.36, and 32.29; for deaths, 4.84, 5.35, 5.63, and 5.28; for total noneffectiveness, 39.70, 41.19, 45.22, and 46.92. The highest admission, discharge, and constantly noneffective rates were for venereal diseases; and the highest death rate for tuberculosis.

TABLE No. 17.—*Deaths among troops serving in the United States, continental (excluding Alaska), in 1909.*

Causes of death.	Number.	Ratios per 1,000 of— Mean strength.	Total deaths.
Tuberculosis (lungs, 30; other organs, 7)	37	0.65	133.57
Pneumonia	20	.35	72.20
Typhoid fever	16	.28	57.76
Organic disease of the heart	18	.31	64.98
Measles	8	.14	28.88
Cerebrospinal fever	7	.12	25.27
Alcoholism (acute, 4; delirium tremens, 2; chronic, 1)	7	.12	25.27
Chronic nephritis	7	.12	25.27
Acute nephritis	4	.07	14.44
Abscess of the liver	4	.07	14.44
Diphtheria	3	.05	10.83
Broncho-pneumonia	3	.05	10.83
Pleuritis	3	.05	10.83
Aneurism	3	.05	10.83
Cirrhosis of the liver	3	.05	10.83
Erysipelas	2	.03	7.22
Septicemia	2	.03	7.22
Cerebral meningitis	2	.03	7.22
Cerebral congestion and hemorrhage	2	.03	7.22
Appendicitis	2	.03	7.22
Scarlet fever	1	.02	3.61
Influenza	1	.02	3.61
Leprosy	1	.02	3.61
Cancer	1	.02	3.61
Acute articular rheumatism	1	.02	3.61
Leukemia	1	.02	3.61
Pernicious anemia	1	.02	3.61
Spinal meningitis	1	.02	3.61
Insanity	1	.02	3.61
Cerebral tumor	1	.02	3.61
Embolus	1	.02	3.61
Purpura abdominalis, chronic (Henocks)	1	.02	3.61
Paralysis of heart due to obesity and overexertion	1	.02	3.61
Chronic emphysema	1	.02	3.61
Tonsillitis, acute	1	.02	3.61
Enteritis, hemorrhagic	1	.02	3.61
Acute peritonitis	1	.02	3.61
Total for disease	170	2.97	613.72
EXTERNAL CAUSES.			
Suicidal:			
By gunshot wounds (revolver, 12; rifle, 5; not stated, 4)	21	.37	75.81
By acute poisoning (carbolic acid, 2; oxalic acid, 1; unknown, 1)	4	.07	14.44
By incised wound (cutting his throat—character of weapon not stated)	1	.02	3.61
By hanging	1	.02	3.61
By inhalation of coal gas	1	.02	3.61
Total suicides	28	.49	101.08

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TABLE No. 17.—*Deaths among troops serving in the United States, continental (excluding Alaska), in 1909*—Continued.

Causes of death.	Number.	Ratios per 1,000 of— Mean strength.	Total deaths.
Homicidal:			
By gunshot wounds (by sentry while attempting to escape, rifle, 3; revolver, 1; in brawl, revolver, 1; by comrade, rifle, 1; unknown, found dead, 1)	7	0.12	25.27
By blunt instrument (concussion of brain received while soldier was on pass, 1; by blow from poker in hands of comrade, 1)	2	.03	7.22
By fracture of skull (thrown from barracks window by comrade)	1	.02	3.61
By incised wound (cut by blade of pocket knife in brawl)	1	.02	3.61
By crushing (manner of traumatism unknown—received in drunken brawl)	1	.02	3.61
Total homicides	12	.21	43.32
Accidental:			
By drowning (while bathing, 9; circumstances unknown, 4; overturning of small boats, 5; falling into water, 4; breaking through ice while skating, 1)	23	.40	83.03
By falling (from horse, fracture of skull, 2; from moving train, fracture of pelvis and rupture of bladder, 1; fracture of skull, 1; while boxing, fracture of skull, 1; from street car, fracture of skull, 1; from railroad bridge, fracture of spine, 1; from porch, fracture of skull, 1; from window, fracture of spine, 1; from roof of building, fracture of skull, 1)	10	.17	36.10
By railroad cars (electric cars—struck by a car, fracture of skull, 1; fracture of spine, 1; both legs crushed, 1; steam cars—run over by cars, crushing, 1; cut in two, 1; injury not stated, 1. Struck by moving cars, fracture of skull, 1; fracture of spine, 1. Crushed in freight car, circumstances not known, 1)	9	.16	32.49
By gunshot wounds (explosion of siege gun while at target practice, 2; self-inflicted, circumstances not stated, rifle, 2; shot by comrades, rifle, 1; revolver, 1; circumstances and weapon unknown, 1)	7	.12	25.27
By acute poisoning (wood alcohol, 5; ptomaine poisoning, cause unknown, 1; nature of poison unknown, 1)	7	.12	25.27
By being struck by runaway horse (numerous injuries)	1	.02	3.61
By being thrown forward on pommel of saddle while riding a fractious horse, extensive traumatism of genito-urinary organs	1	.02	3.61
By laceration of jejunum by kick of mule	1	.02	3.61
By burns of trunk and upper extremities, explosion of powder	1	.02	3.61
Punctured wound penetrating chest and lacerating heart, inflicted by the metallic end of pike pole	1	.02	3.61
By being struck by automobile, fracture of skull	1	.02	3.61
By being buried under falling earth, fracture of spine	1	.02	3.61
By overturning of cart, fracture of skull	1	.02	3.61
By ether anesthesia	1	.02	3.61
Circumstances unknown, found dead, fracture of skull	2	.03	7.22
Total accidental	67	1.17	241.88
Total external causes	107	1.87	386.28
Total diseases	170	2.97	613.72
Grand total	277	4.84	1,000.00

The next higher rates for the United States were as follows:

Disease and ratio per 1,000.

Disease.	Admission.	Discharge.	Death.	Noneffective.
Tonsillitis	64.51			1.03
Bronchitis	36.55			
Influenza	34.87			
Tuberculosis		2.10		3.33
Insanity		1.38		
Organic heart disease		1.05	0.31	
Pneumonia			.35	
Typhoid fever			.28	
Rheumatism				1.02

The total number of deaths from all causes was 277, of which 170 were due to disease and 107 from external causes. Of the latter 67 were accidental, 28 were suicidal, and 12 were homicidal.

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CHART N.—*Showing ratios per thousand of mean strength for discharges for disability, all causes, for ten years, since 1900, for the United States proper.*

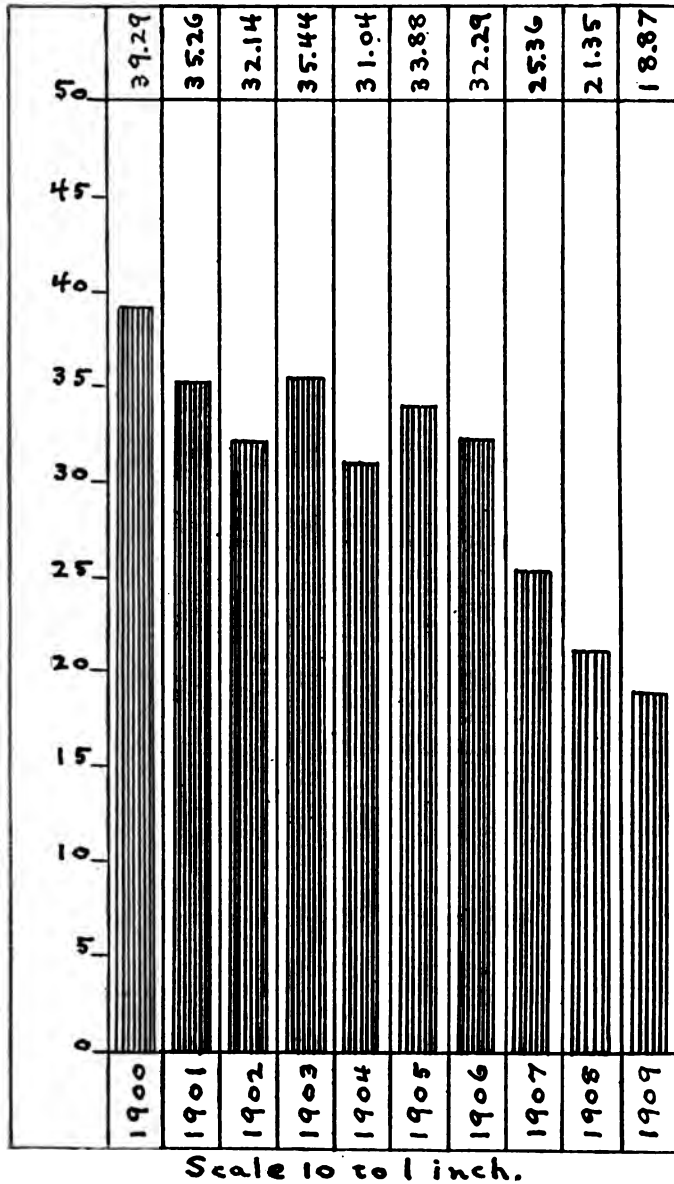

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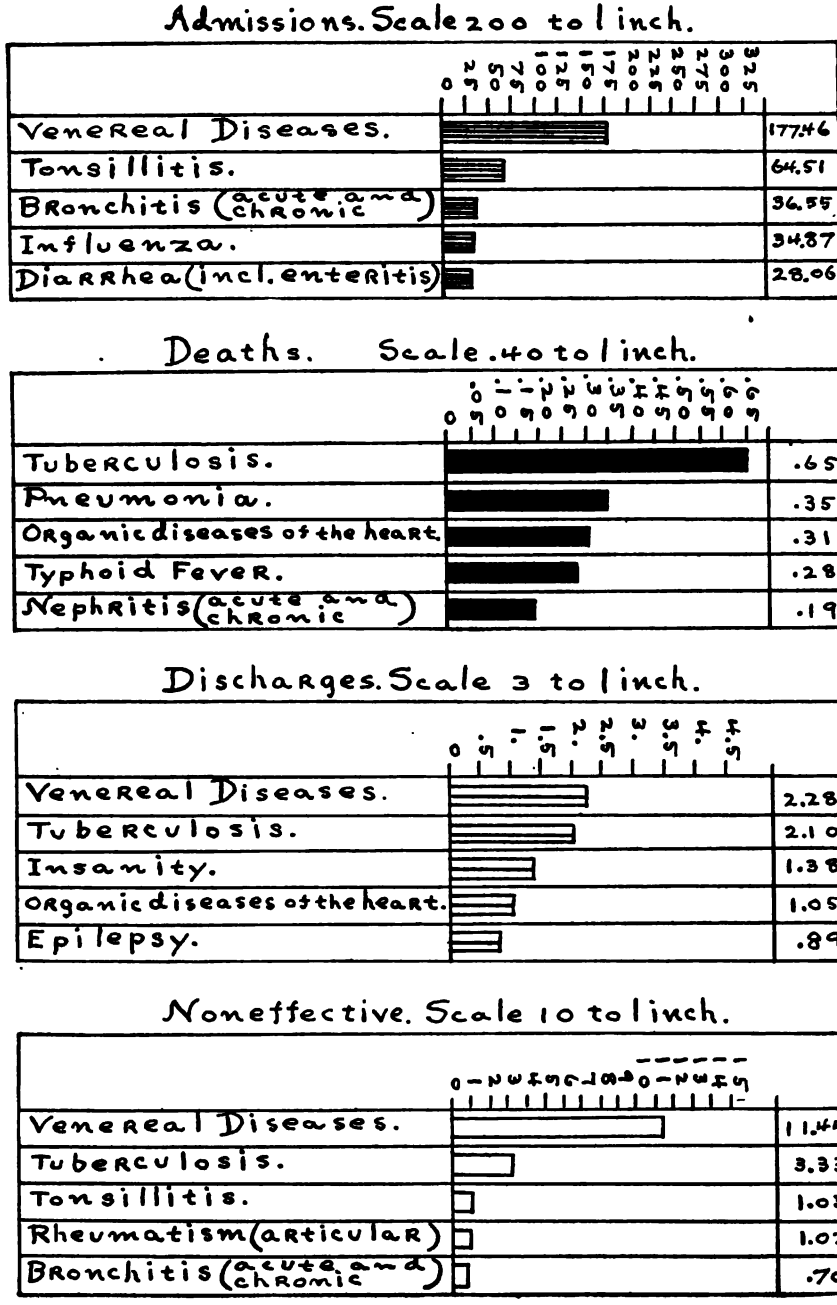
CHART O.—*Showing the relative admission, death, discharge, and noneffective ratios per thousand of mean strength for the five diseases causing the highest rates in the United States proper.*



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PREVALENCE OF SPECIAL DISEASES.

TYPHOID FEVER.

One hundred and seventy-three cases of typhoid fever occurred during the year in the army stationed within the geographical limits of the United States, with 16 deaths. Its distribution at the different posts was as follows:

TABLE No. 18.—*Typhoid fever at Military Stations, 1909.*

Station.	Admitted.	Days treated.	Constantly sick.	Died.	Remarks.
Fort D. A. Russell, Wyo	35	2,278	6.24	.....	30 cases in Co. F, 4th Field Artillery.
Fort Niagara, N. Y	18	825	2.26	1	5 cases in Co. I, 10 in Co. K, 12th Infantry.
Fort Sill, Okla	16	884	2.42	3	5 cases in Co. A, 7 in Co. B, 3 in Co. C, 1st Field Artillery.
Fort McPherson, Ga	10	1,018	2.79	1	7 cases in Co. E, 17th Infantry.
Fort Sam Houston, Tex	8	476	1.30	2	
Fort Leavenworth, Kans	7	272	.75	3	
Fort Monroe, Va	6	203	.56	.....	
Vancouver Barracks, Wash	[a] 6	375	.03	.....	
Army and Navy General Hospital, Hot Springs, Ark.	5	248	.68	.....	
Presidio of San Francisco, Cal	4	4	.01	.....	
Washington Barracks (post), D. C	4	4	.01	.....	
Columbus Barracks, Ohio	3	202	.55	.....	
Fort Huachuca, Ariz	3	219	.60	.....	3 cases in Troop F, 8th Cavalry, infected on practice march.
Fort Snelling, Minn	3	467	1.28	1	
Field, Department of the Gulf	3	6	.02	.....	
Fort Sheridan, Ill	3	163	.45	2	
Fort Benjamin Harrison, Ind	2	268	.73	.....	
Fort Crook, Nebr	2	282	.77	.....	
Fort Des Moines, Iowa	2	217	.59	.....	
Fort Robinson, Nebr	2	282	.77	.....	
31 other stations, having 1 case each	[b] 31	2,144	.....	3	
Cases remaining from previous year	.....	1,323	.....	.....	
Total	173	12,160	33.32	16	

[a] Two cases paratyphoid fever. [b] One case paratyphoid fever.

The admission and death rates for this disease were 3.03 and 0.28, respectively, as compared with 2.94 and 0.23 for 1908. The case mortality was 9.2 per cent, this and the death rate being higher than for the two past years.

The ratio of incidence for white troops was 3.10 and for colored troops 1.02.

The following comparative table shows the most important variations in the occurrence of this disease for the present year as compared with 1908 and 1907:

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Typhoid fever admissions at certain posts.

Post.	1909.	1908.	1907.
Fort D. A. Russell, Wyo	35	1	.....
Fort Niagara, N. Y	18	.....	.....
Fort Sill, Okla	16	2	.....
Fort McPherson, Ga	10	.....	.....
Fort Sam Houston, Tex	8	2	16
Fort Leavenworth, Kans	7	3	12
Fort Monroe, Va	6	6	4
Vancouver Barracks, Wash	6	.....	.....
Army and Navy General Hospital, Hot Springs, Ark	5	2	.....
Presidio of San Francisco, Cal	4	2	1
Washington Barracks, D. C	4	1	2
Columbus Barracks, Ohio	3	6	10
Fort Thomas, Ky	.....	2	7
Fort Slocum, N. Y	.....	1	6
Fort Walla Walla, Wash	.....	.....	5
Fort Oglethorpe, Ga	.....	.....	4
Fort Des Moines, Iowa	.....	10	3
Fort Robinson, Nebr	.....	5	2
Fort Wingate, N. Mex	.....	8	.....
Fort Riley, Kans	.....	5	.....

INVESTIGATION OF OUTBREAKS.

At Fort Sill, Okla., there was an outbreak with 20 cases and 4 deaths. The first 2 and last 2 cases seem to have no connection with the main group and must be regarded as sporadic.

There were 16 cases in the main group which appeared inside of eleven days, and 12 out of the 16 appeared within a period of six days. The remaining 4 cases appeared so quickly after the others that they must have been infected from the same source and at about the same time.

The epidemic was thoroughly investigated by Maj. Frederick F. Russell, curator, Army Medical School, assisted by Maj. Douglas F. Duval, post surgeon.

The conclusion arrived at as the result of the investigation was that the source of infection was probably ice cream manufactured at Lawton, Okla., and sold at the post exchange.

There was an extensive epidemic at Fort D. A. Russell, Wyo.; 35 cases occurred. Cases occurred in organizations as follows:

Battery F, Fourth Field Artillery	30
Battery D, Fourth Field Artillery	1
Battery E, Fourth Field Artillery	1
Battery A, Second Field Artillery	1
Battery B, Second Field Artillery	1
Battery C, Second Field Artillery	1

Intestinal hemorrhage occurred in 3 cases; post-typhoidal nephritis in 1 case; arthritis in 1 case; phlebitis in 1 case; cutaneous ulcers and general debility, 2 cases; mortality, none.

The dates on which the cases were admitted to hospital are as follows:

	Cases.		Cases.
Aug. 28	1	Oct. 21	4
30	1	22	5
Sept. 6	1	24	2
11	1	25	4
Oct. 11	1	26	2
14	2	29	1
17	1	Nov. 5	1
18	2	6	1
19	1	8	1
20	2	17	

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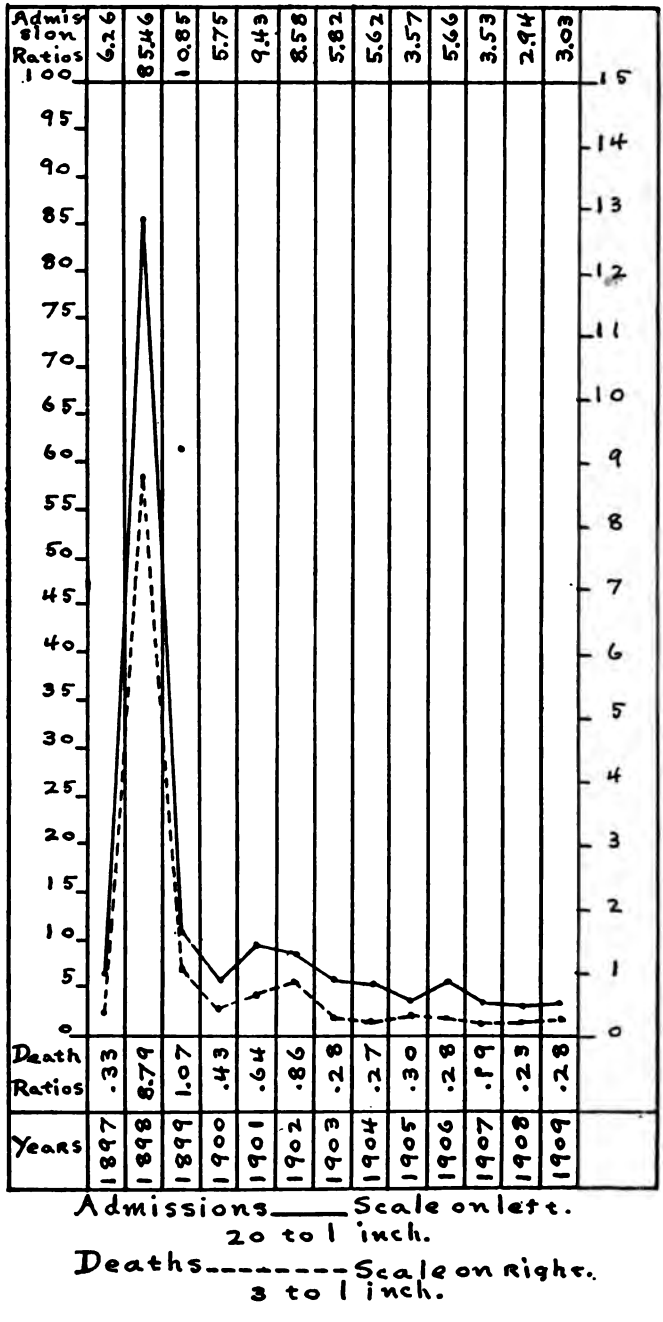
CHART P.—*Showing the admission and death ratios per thousand of mean strength for typhoid fever, by years, since 1897, for the United States proper.*



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This epidemic was carefully investigated by Maj. P. M. Ashburn, Medical Corps, assisted by the medical officers at the post.

It will be seen from the above table that there were 4 cases admitted from August 28 to September 11, and then no more for an entire month. These 4 cases all developed outside the post, either at the maneuver camp at Pole Mountain, 30 miles away, or at Islay, a railway point where there was a tank and section house, and where stores for the camp were unloaded from trains and put into wagons. The command returned to the post September 11, and while no recognized case occurred for a month thereafter, there were many men sick who did not go to hospital, or were not admitted when they did go, at least 9 of those afterwards in hospital with typhoid being among the number. The fact that the men were not admitted to hospital is accounted for, in part at least, as follows: Fort D. A. Russell, until recently a regimental post, is now a brigade post. At the time in question the new hospital was not finished and the old hospital for the regimental post was still in use. Consequently, the hospital was very much crowded and the surgeons felt themselves under the necessity of treating in quarters most of the sick who seemed able to be out of bed.

In addition to the 9 cases later admitted for typhoid, there were subsequently found 7 other men of Battery F, Fourth Artillery, who were sick during the month from September 11 to October 11, and of these men 1 gave a positive Widal reaction in a dilution of 1 to 160 on November 5. These facts and the additional one that most of the typhoid patients in hospital had been sick from a few days to three weeks or more before their admission, strengthens the suggestion that there had been unrecognized cases in that month and that the epidemic was a continuation of the small camp epidemic. The case histories also indicate a way in which the infection might have been transmitted, as they showed that at least 5, and possibly 7, men were on duty as dining-room attendants, while actually sick with typhoid, for which they were later admitted to hospital, and that as dining-room attendants they had waited on the tables, handled and passed food and dishes, and had not scrubbed or paid especial attention to the condition of their hands.

Major Ashburn invites attention to the following points, the importance of which was emphasized by this epidemic, and a plea made for future care in regard to them:

1. The ordinary incubation period of typhoid fever is from a few days to three weeks, not six or eight weeks.
2. Typhoid may be contagious in its earliest stages, not merely during the height of the fever or in convalescence.
3. The kitchen should be the first place investigated during the occurrence of a company epidemic.
4. When a severe company epidemic prevails in a post the infected organization should be isolated and inspected by a medical officer daily or oftener.
5. All fever cases or other suspects should be sent to hospital and treated as typhoid until they prove to be something else.
6. In time of epidemic a "typhoid suspect" is a person who suffers from any signs or symptoms that may be indicative of typhoid, not the person with a well-marked case.
7. Fever in a man susceptible and who has been exposed to typhoid should be assumed, until proven otherwise, to be typhoidal, and not due to exercise in a high altitude or any such thing.

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8. Sweeping in barracks should be done in such a way as to raise a minimum amount of dust.

9. Drinking should be from individual cups.

10. Company commanders, medical officers, and all others in authority should encourage men to go on sick report when they are sick, and this is especially important during the prevalence of an epidemic.

11. Sick men should at all times and by all means be kept from handling food stuffs, especially after such stuffs have had their final cooking, and more especially in the presence of an epidemic.

12. Kitchen and dining-room work should not be given by roster or as a punishment. It should carry rewards, immunities, or privileges sufficient to make it attractive and desirable and should be given only to the cleanest and best soldiers.

13. Every kitchen, dining room, and toilet room should be well provided with soap and abundant and good nail brushes, and men should be taught to scrub their hands and clean their nails before handling even their own food, and to scrub and clean them with especial care before handling their comrades' food.

14. In camp and garrison the work of sanitary inspection should be done by experienced medical officers, not by those new to the service. The latter are probably as well equipped for treating the sick as they ever will be, while they may have all to learn as regards military hygiene and sanitary inspection.

At Fort McPherson, Ga., 7 cases occurred in Company E, Seventeenth Infantry, between June 17 and July 1, 1909. This was probably a company infection. The post surgeon, Maj. David Baker, has the following to say in regard to the measures taken to stamp out the epidemic:

Every case was promptly isolated. The nurses were isolated and every precaution taken to prevent escape of infection from the ward by dishes, clothing, flies, excreta, etc. In Company E twice a day temperature were taken of all men for three weeks after the last case was admitted from that organization. All personal effects of patients and their equipment were disinfected. In Company E a general disinfection was made. I have fairly excluded contact in this garrison. The water supply is excellent, the milk supply inspected and not suspected, and bacillus carriers excluded in the cooks of Company E.

Six other cases were admitted to this hospital, but of these 1 was from the attending surgeon's office in Atlanta, 2 from a field hospital, and 3 occurred in November, 1 each in Companies L, F, and N. These were probably sporadic.

The cases at other posts were sporadic, the infection either being contracted while on a practice march or from some neighboring city or town. At Columbus Barracks, Ohio, 2 of the 3 cases were recruits recently arrived, and 1 a man just returned from furlough. At Fort Huachuca, Ariz., the 3 cases occurring in Troop F, Eighth Cavalry, were probably infected while on practice march.

VACCINATION AGAINST TYPHOID FEVER.

Very considerable progress has been made during the year in the campaign for the protection of the army against this disease by means of vaccination with killed cultures of the *Bacillus typhosus*. This practice was introduced in March, 1909, and in the last annual report details were given of the vaccination of 830 individuals; since that date 10,941 persons have been vaccinated, making a total to date of 11,771, of whom completed record cards have been received.

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The following table shows the distribution among organizations of those vaccinated:

OFFICERS.	
General Staff	7
Adjutant-General's Department	2
Inspector-General's Department	1
Quartermaster's Department	7
Subsistence Department	2
Medical Department	211
Pay Department	2
Corps of Engineers	7
Signal Corps	4
Cavalry	55
Field Artillery	23
Coast Artillery	74
Infantry	178
Porto Rico regiment of infantry	6
Retired officers	1
Total	580
Post quartermaster sergeants	12
Commissary sergeants	13
Hospital Corps	1,356
Engineer Corps	148
Ordnance sergeants	9
Signal Corps	298
Second Cavalry	1
Third Cavalry	23
Fourth Cavalry	269
Fifth Cavalry	85
Sixth Cavalry	1
Seventh Cavalry	395
Eighth Cavalry	189
Eleventh Cavalry	150
Twelfth Cavalry	1
Thirteenth Cavalry	1
Fourteenth Cavalry	14
Fifteenth Cavalry	40
Field Artillery Corps at Military Academy	1
First Field Artillery	318
Second Field Artillery	104
Third Field Artillery	89
Fifth Field Artillery	11
Sixth Field Artillery	294
Coast Artillery Corps:	
Bands	48
Noncommissioned staff	39
Recruits	1
Coast Artillery Companies	2,928
First Infantry	300
Second Infantry	32
Fifth Infantry	235
Sixth Infantry	16
Ninth Infantry	57
Tenth Infantry	174
Eleventh Infantry	2
Twelfth Infantry	27
Fourteenth Infantry	180
Fifteenth Infantry	14
Sixteenth Infantry	47
Seventeenth Infantry	45
Nineteenth Infantry	14
Twentieth Infantry	114
Twenty-first Infantry	37
Twenty-second Infantry	108
Twenty-fourth Infantry	388
Twenty-fifth Infantry	126
Twenty-sixth Infantry	730
Twenty-seventh Infantry	113
Twenty-eighth Infantry	65
Twenty-ninth Infantry	299
Porto Rico Regiment of Infantry	310
Recruiting parties, recruit depots, and unassigned recruits	383
United States military prison guard	53
Indian scouts:	
Fort Clark, Tex	16
Military convicts	8
Prisoners of war (Indians)	7
Detailed bakers and cooks	20
United States Navy:	
United States Navy	31
Naval station, Key West	90
Total	121
Militia:	
Mississippi National Guard	2
Officers Revenue-Cutter Service	1
Civilians	309

RECAPITULATION.

Officers		580
Enlisted:		
Quartermaster's Department	12	
Subsistence	13	
Hospital Corps	1,356	
Engineer Corps	148	
Ordnance	9	
Signal Corps	298	
Cavalry	1,169	
Field Artillery	817	
Coast Artillery Corps	3,016	
Infantry	3,123	
Porto Rican Infantry	310	
General service	383	
United States military prison guard	53	
Indian scouts	16	
Military convicts	8	
Indian prisoners of war	7	
Detailed bakers and cooks	20	
		10,758
Total in the army		11,338
United States Navy	121	
Revenue-Cutter Service	1	
Militia	2	
Civilians	309	
Total outside of army		433
Total number vaccinated		11,771

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The total number of doses administered was 31,556. The practice of giving three doses to as many persons as possible has been continued and we find that 74.6 per cent received the full course of three; 21.5 per cent received two doses, and only 3.9 per cent failed to receive more than one. The failure to receive the second and third doses i the smallest group (3.9 per cent) has rarely been due to refusal, b usually to change of station, discharge, desertion, etc. No untowa results have been reported as a result of the administration of t vaccine.

The degree of severity of the general reaction following each has been tabulated and is shown in the following table:

Dose.	Absent.	Mild.	Moderate.
	Per cent.	*Per cent.*	*Per cent.*
First	62.7	32.0	4.5
Second	68.6	25.8	5.6
Third	79.0	16.7	4.1

The number of moderate and severe reactions is quite fully 95 per cent of the men have little or no reaction or aside from a somewhat tender spot on the arm, which is blesome and disappears in twenty-four to forty-eight number of really severe reactions (0.5 per cent) is less t reported last year.

Among the 11,338 persons in the army who have be there have developed to date three cases of typhoid w In the first case there is no doubt but that the infect while the man was crossing the continent and before t was completed. The diagnosis was confirmed by the bacilli from the feces. The other two cases were so absence of blood cultures there remains some little correctness of the diagnosis. In this connection remember that the Widal reaction as a means of persons who have been vaccinated is worthless, appears immediately after immunization and pe length of time; in some cases now under observat after a year and a half. Among such patients t of confirming a clinical diagnosis by laboratory blood cultures.

The value of this measure is shown approxim table:

Unvaccinated
Vaccinated

The actual strength of the army for 190 was 85,788, of whom 11,338 have been vacc of 74,450 unprotected. The number of

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those which have occurred in the entire army since the introduction of the practice of vaccination in March, 1909, up to June 30, 1910, and the figures for the number vaccinated cover the same period. It is more difficult to give accurately the number of the unvaccinated because of the changes in the personnel which are continually taking place, but it is believed that the rates given are fair and as accurate as can be obtained. The incidence among the unvaccinated is thus nearly sixteen times as high as among the vaccinated.

It is believed that the Medical Department has accomplished all that is practicable in the way of voluntary vaccination against typhoid fever and that the innocuousness of this procedure has been entirely demonstrated. Its protective value is now believed to be as perfectly demonstrated as any fact in medicine, and if it is desired by the War Department that the army have the benefit of this protection, the time has come to require it as a routine procedure throughout the army. Although no age is entirely exempt from typhoid fever, it is essentially a disease of adolescence. Individuals who have reached middle age have usually been exposed to the infection and are either immune because of a previous attack or because of natural immunity. Osler states that the period of greatest susceptibility is between the ages of 15 and 25. He shows that out of 1,500 cases treated at the Johns Hopkins Hospital there were 1,164, or nearly 78 per cent, under 30 years of age, and 335, or 22 per cent, were over that age, and in two cases the ages were not given. It is believed to be reasonable, therefore, to except from the universal vaccination of the army all persons over 35 years of age and all who give a reliable history of having had an attack of the disease. Surgeons should also be authorized to excuse any person for reasons of health, provided the exception is approved by the chief surgeon of the department. Recruits should of course be vaccinated immediately after enlistment but revaccinations upon reenlistment should not be required.

CEREBROSPINAL MENINGITIS.

Thirteen cases of this disease and 7 deaths occurred, which is exactly the number for 1908 and is a considerable reduction from the figures for 1907, when there were 33 cases and 30 deaths. Three cases occurred at Jefferson Barracks, where the appearance of the disease was mentioned in my last report. Two cases each occurred at Fort Baker, Cal., and Fort Assinniboine, Mont., and the remaining cases each at a separate post. In only two of the cases is there any evidence connecting them with antecedent cases.

MALARIA.

The occurrence of malarial fever, as shown by Chart Q continues to decrease. The admission rate for 1909 was 23.06, as compared with 26.69 for 1908 and 30.20 for 1907, which in its turn was the lowest on record in this office. This continuous improvement is to be credited not alone to the efforts of medical officers supported by commanding officers, but also to the liberal provision of wire gauze screens for doors and windows by the Quartermaster's Department.

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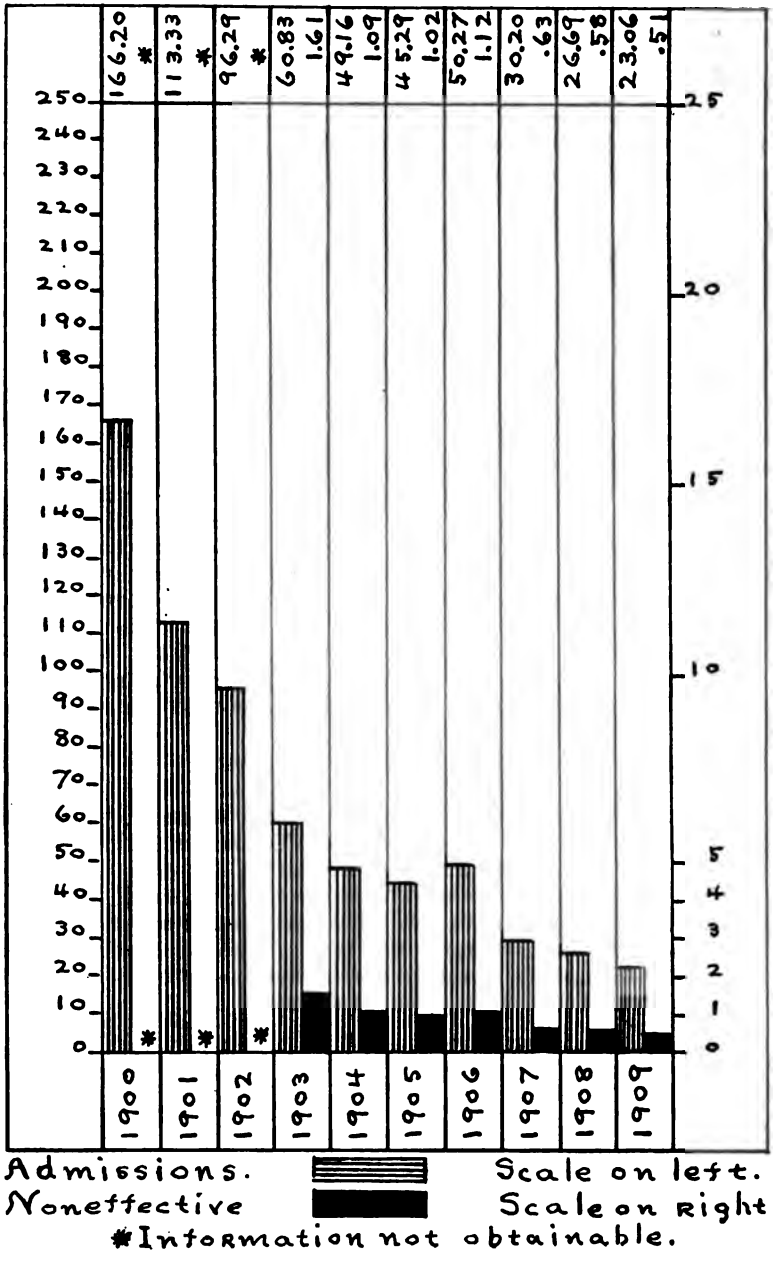
CHART Q.—*Showing the relative admission and noneffective ratios per thousand of mean strength, for the decade 1900–1909, for malarial fevers in the United States proper.*



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...cidence of the various forms of ...ears.

States, continental, (excluding Alaska), ...09.

...mean strength.]

	Discharged on surgeon's certificate of disability.			Died.			Noneffective.		
	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.
	.....	.....	.....	.....	.....	....	0.41	0.42	0.13
	.....	.....	.....	.....	.....	....	.49	.49	.14
	.....	.....	.....	.....	.....	....	.53	.54	.02
	.....	.....	.....	.....	.....	....	.93	.97	.39
	.....	.....	.....	.....	.....	....	.07	.07	.03
	.....	.....	.....	.....	.....	....	.08	.08	.04
	.....	.....	.....	.....	.....	....	.08	.08	.....
	.....	.....	.....	0.02	0.03	....	.10	.11	.03
	0.02	0.02	.....	.....	.....	....	.04	.04	.....
	.....	.....	.....	.....	.....	....	.01	.01	.....
	.....	.....	.....	.....	.....	....	.02	.02	.....
1	.05	.05	.....	.....	.....	....	.09	.08	.15
7	.02	.02	.....	.....	.....	....	.51	.53	.16
3	.....	.....	.....	.....	.....	....	.58	.59	.18
6	.....	.....	.....	.....	.....	....	.63	.65	.02
56	.05	.05	.....	.02	.03	....	1.12	1.16	.55

...posts having the highest admission rates

...e United States having the highest admission rates for ...arial diseases, year 1909.

[...ios per 1,000 of mean strength.]

	Mean strength.		Malarial diseases, total ratio.	
	1909.	1908.	1909.	1908.
.....	482	298	215.77	144.30
.....	1,052	900	137.83	152.22
...demy), N. Y.	668	668	110.78	76.35
.....	609	470	87.03	72.34
...k	254	192	82.68	93.74
.....	212	149	70.75	46.98
.....	2,305	2,388	66.81	57.79
.....	339	239	64.90	75.31
.....	330	398	63.64	150.75
.....	453	377	61.81	98.14
...ies	57,124	46,316	23.06	26.69

...ngton, Md., has a very high rate this year and stands ...l infection. It shows a marked increase in malarial in- ...edi... year, although less than for 1906 and 1907. ...e... forwarding the sanitary report for May

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states that dense undergrowth, almost tropical in character, exists near the barracks and along roads much used by the men, which if not removed will, it is feared, cause an increased prevalence of malaria this summer.

Jefferson Barracks stands second, the latter due probably to its being a recruiting station, which draws a large transient population from malarious districts.

West Point is in the third place, having failed to maintain the improvement shown in the preceding report.

UNDETERMINED FEVERS.

The admission rate for these fevers for the United States was 2.15, as compared with 3.80 for 1908, 4.67 for 1907, and 7.73 for 1906. The different diagnoses included under this heading and the number of admissions are given in the following table, which shows, also, their occurrence in the colonial possessions:

TABLE No. 21.—*Undetermined fevers, 1909, American troops, by countries.*

Disease.	United States.	Alaska.	Cuba.	Hawaii.	Philippine Islands.	Transports.	Total army.
Febricula	59	.....	1	3	183	.....	246
Fever, simple continued	15	.....	.....	.....	103	2	120
Fever, type undetermined	36	1	3	.....	13	8	61
Ephemeral fever	5	.....	.....	1	23	1	30
Thermic fever	8	.....	.....	.....	5	.....	13
Total	123	1	4	4	327	11	470
Ratios, year 1909	2.15	.94	6.62	3.94	25.46	6.59	6.32

SMALLPOX.

Two cases of varioloid occurred during the year, both ending in recovery. One was at Fort Douglas, Utah, being an applicant for enlistment, who presented himself for examination in the eruptive stage. The other case occurred in a private, Twenty-fifth Infantry, at Fort George Wright, Wash.

YAWS.

A case of yaws was observed in a corporal, Tenth Cavalry, at Fort Ethan Allen. The treponema pertenue was found in the ulcers in abundance. This soldier had served in the Philippines, sailing for the United States May 15, 1909. The lesions were first observed July 2, 1909.

TUBERCULOSIS.

The admission rate for tuberculosis, 4.74, and the death rate, 0.65, are larger than last year, when they were 4.08 and 0.40, respectively. The discharge rate this year, 2.10, is less than for 1908, when it was 2.77. In 1907 the rate was 3.93. These rates are larger than in the majority of the foreign armies.

From Table No. 68 it will be seen that the occurrence of tuberculosis in our army at home is 4.74, which is higher than for all foreign armies except the Spanish, French, and Dutch, which have

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rates of 5.92, 7.44, and 5.3, respectively. The death rate from this cause in the latter is lower than in ours, due to the fact that while many cases are retained for treatment in our army, they are much more freely discharged in foreign armies. Our death rate of 0.65 is exceeded by the French army with a rate of 0.76 and the Spanish army with 0.67 per 1,000.

It is of much importance to decide to what extent the tuberculosis occurring in the army is the result of infections received while in the service and what proportion of it is due to a recrudescence of old arrested foci which have escaped the scrutiny of the medical examiner at the time of enlistment. The company is the unit of commensal life and close personal contact in the army, and so we would expect to find a disease which is transmitted usually as a house infection manifesting itself by a series of small company epidemics.

In studying the 822 company organizations in the army with reference to this point we find as follows: No case in 577 companies, 1 case in 204 companies, 2 cases in 32 companies, 3 cases in 5 companies, 4 cases in 3 companies.

Upon examination of the dates of admission and disposition of the cases in the 40 companies which had more than one case, it is found that the interval between the departure of the case from the post and the admission of the next succeeding case exceeded three months 24 times in the 51 intervals noted. Also of the 27 companies which in 1908 had more than 1 case, we find that in 1909 15 had no case, 10 had only 1 case, and 2 had 2 cases. Of the 40 companies which in 1909 had more than 1 case, we find that in the preceding year 31 had no case, 5 had 1 case, 3 had 2 cases, and 1 had 3 cases.

It must be borne in mind that a portion of these companies had a change of station during the year, but estimating this number at one-third and making due allowance therefor, it seems evident that place infections must be quite a small factor in the production of tuberculosis in the army. In fact, a tuberculous soldier has small chance to infect his comrades, since as soon as he becomes sick he is promptly removed to hospital and as soon as a diagnosis of probable pulmonary tuberculosis is made he is transferred to the Hospital for Tuberculosis at Fort Bayard, N. Mex. In view of the abundant food and good clothing, and the large amount of exercise in the open air which the soldier enjoys, as well as the protection from infection due as above shown to the prompt elimination of those infected, it would seem that the chances of acquiring tuberculosis in the army would be small as compared with civil life. It is believed, therefore, that a large proportion of the cases developing in the army are recurrences of old and arrested infections acquired before enlistment, and that, as is the case with the venereal diseases, the hope of improvement in the army rests to a large extent upon the success of preventive work in the civil population from which it is recruited.

It must be always kept in mind that an abundant supply of pure air constitutes the best preventive as well as the best remedy for tuberculosis. The question of air space in barracks was discussed in last year's report and it was pointed out that in the construction of the barracks provision is made for an air space of 720 feet for each soldier, the height above 12 feet being disregarded. This allowance is not ample and should be regarded as sufficient only when the arrangements to secure ventilation are satisfactory and are maintained

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in satisfactory operation. From sanitary reports received from time to time it seems that the supervision of the ventilation of barracks is sometimes neglected and that the air ducts are intentionally stopped up by soldiers who fear the fresh air. This is a matter of great importance which should be brought to the attention, not only of the medical officers, but of the company officers. All company officers and first sergeants should be instructed that when the squad-rooms have a close and disagreeable smell upon entering from the outer air it is a certain and reliable indication that the supply of fresh air is deficient, and the ventilating arrangements should be at once inspected and an increased supply of fresh air secured.

In this connection the following order issued by the commanding officer, Fort Wayne, Mich., upon the recommendation of the post surgeon, deserves attention:

Inspections of the company quarters during the past month show that they are not being properly ventilated, especially at night.

The commanding officer directs that company commanders give this matter their personal attention. Frequent inspections will be made by company commanders, at least two of which will be every month, near midnight.

To insure accurate use all ceiling ventilators in barracks and guardhouse will be supplied with ropes accurately labeled "open" or "shut."

Attention in this connection is invited to "barracks and quarters" and "floor space and ventilation," Chapter IV, Woodhull's Military Hygiene.

This order will be kept posted in company quarters, and report will be rendered at end of month of result of such inspections at night.

The recommendation made last year is renewed, that upon the doors of dormitories and squadrooms should be posted the number of men who can be properly accommodated in such rooms.

Table No. 22 shows the movement of cases and also the distribution of this disease by countries.

TABLE No. 22.—*Occurrence of tuberculosis among American troops, army, year 1909, by years of service.*

	During first year of service.	During second year of service.	During third year of service.	During fourth year of service.	During fifth year of service.	During sixth year of service and over.	Total.
United States, continental (excluding Alaska):							
Mean strength	15,654	13,879	5,910	4,298	3,541	13,842	57,124
Admitted	77	58	27	21	15	61	259
Ratio per 1,000 of mean strength	4.92	4.18	4.57	4.89	4.24	4.41	4.53
Duty	11	5	7	1	.....	6	30
Died	10	3	3	1	2	9	28
Discharged on surgeon's certificate of disability	21	9	3	4	3	7	47
Otherwise	2	.....	2	1	2	1	8
Remaining Dec. 31, 1909	33	41	12	14	8	38	146
Philippines:							
Mean strength	1,138	2,870	2,313	1,011	1,032	4,480	12,844
Admitted	15	12	5	6	6	21	65
Ratio per 1,000 of mean strength	13.18	4.18	2.16	5.94	5.81	4.69	5.06
Duty	1	3	.....	1	.....	2	7
Died	2	.....	.....	1	1	1	5
Discharged on surgeon's certificate of disability	1	1	1	2	2	1	8
Otherwise	.....	1	.....	1	.....	.....	2
Remaining Dec. 31, 1909	11	7	4	1	3	17	43
Cuba:							
Mean strength	206	151	68	34	22	123	604
Admitted	1	.....	.....	.....	.....	.....	1
Ratio per 1,000 of mean strength	4.85	.....	.....	.....	.....	.....	1.66
Discharged on surgeon's certificate of disability	1	.....	.....	.....	.....	.....	1

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TABLE No. 22.—*Occurrence of tuberculosis among American troops, army, year 1909, by years of service*—Continued.

	During first year of service.	During second year of service.	During third year of service.	During fourth year of service.	During fifth year of service.	During sixth year of service and over.	Total.
Alaska:							
Mean strength	61	201	174	87	96	445	1,064
Admitted	.....	2	.....	1	.....	1	4
Ratio per 1,000 of mean strength	.....	9.95	.....	11.50	.....	2.25	3.76
Remaining Dec. 31, 1909	.....	2	.....	1	.....	1	4
Hawaii:							
Mean strength	141	296	250	48	67	212	1,014
Admitted	3	.....	.....	.....	.....	.....	3
Ratio per 1,000 of mean strength	21.28	.....	.....	.....	.....	.....	2.96
Duty	1	.....	.....	.....	.....	.....	1
Remaining Dec. 31, 1909	2	.....	.....	.....	.....	.....	2
Transports:							
Mean strength	164	359	318	124	133	571	1,669
Admitted	1	.....	.....	.....	.....	4	5
Ratio per 1,000 of mean strength	6.10	.....	.....	.....	.....	7.01	3.00
Remaining Dec. 31, 1909	1	.....	.....	.....	.....	4	5
Total army:							
Mean strength	17,364	17,756	9,033	5.602	4,891	19,673	74,319
Admitted	97	72	32	28	21	87	337
Ratio per 1,000 of mean strength	5.59	4.06	3.54	5.00	4.29	4.42	4.53
Duty	13	8	7	2	.....	8	38
Died	12	3	3	2	3	10	33
Discharged on surgeon's certificate of disability	23	10	4	6	5	8	56
Otherwise	2	1	2	2	2	1	10
Remaining Dec. 31, 1909	47	50	16	16	11	60	200

NOTE.—Of the 350 cases admitted in 1909, 13 were returned to duty and readmitted, leaving 337 individuals to be accounted for, giving a ratio of 4.53 per 1,000 of mean strength.

Table No. 23 shows the posts having more than one case for 1909 and also those for 1908 for purpose of comparison. Taken in connection with the data above given as to its occurrence in organizations it seems clear that prevalence of tuberculosis in a post as well as in a company one year does not to a marked extent influence its occurrence in the following year.

TABLE No. 23.—*Tuberculosis at army stations, United States, continental (excluding Alaska), year 1909.*

	Admissions year 1909.		Admissions year 1908.	
	Number.	Ratios per 1,000 of mean strength.	Number.	Ratios per 1,000 of mean strength.
Fort Leavenworth, Kans	18	7.81	8	3.35
Fort Robinson, Nebr	16	30.95	0	.....
Presidio of San Francisco, Cal	14	5.73	3	1.50
Fort Monroe, Va	13	10.49	5	5.61
Columbus Barracks, Ohio	9	8.10	5	5.42
General Hospital, San Francisco, Cal	8	29.41	4	14.81
Fort Riley, Kans	8	3.55	4	2.22
Fort Slocum, N. Y	8	7.41	5	5.73
General Hospital, Fort Bayard, N. Mex	7	55.56	4	32.00
Fort Benjamin Harrison, Ind	7	8.08	5	18.80
Fort Sam Houston, Tex	7	3.86	6	5.00
Fort Totten, N. Y	7	9.42	3	5.10
Fort Walla Walla, Wash	6	30.61	1	3.95
Fort Worden, Wash	6	8.47	8	19.80
Fort Barrancas, Fla	5	8.21	3	6.38

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TABLE No. 23.—*Tuberculosis at army stations, United States, continental (excluding Alaska), year 1909*—Continued.

	Admissions year 1909.		Admissions year 1908.	
	Number.	Ratios per 1,000 of mean strength.	Number.	Ratios per 1,000 of mean strength.
Fort William Henry Harrison, Mont	5	17.24	1	4.00
Fort Douglas, Utah	4	5.28	7	10.19
Fort McPherson, Ga	4	5.72	1	5.15
Madison Barracks, N. Y	4	8.53	3	9.40
Presidio of Monterey, Cal	4	4.29	1	1.26
Fort Snelling, Minn	4	3.61	0	.....
Fort Baker, Cal	3	6.19	2	6.62
Fort Crook, Nebr	3	6.64	0	.....
Fort D. A. Russell, Wyo	3	1.54	2	3.28
Fort Du Pont, Del	3	6.40	0	.....
Fort George Wright, Wash	3	6.20	2	4.73
Fort Hamilton, N. Y	3	5.63	1	2.16
Fort Jay, N. Y	3	7.96	4	12.46
Jefferson Barracks, Mo	3	2.85	4	4.44
Fort Missoula, Mont	3	11.24	0	.....
Fort Niagara, N. Y	3	9.58	3	10.38
Plattsburg Barracks, N. Y	3	5.43	1	4.65
Fort Sheridan, Ill	3	3.18	2	3.00
Fort Sill, Okla	3	6.62	1	2.65
Vancouver Barracks, Wash	3	2.28	3	3.84
West Point, N. Y., Military Academy	3	4.49	1	1.50
Fort Williams, Me	3	6.70	0	.....
Fort Porter, N. Y	0	.....	6	29.27
Fort Adams, R. I	0	.....	5	10.66
Fort Thomas, Ky	0	.....	4	8.47
Fort Greble, R. I	0	.....	4	23.39
Fort Des Moines, Iowa	0	.....	4	6.24
Fort Moultrie, S. C	0	.....	4	8.55
Fort Logan H. Roots, Ark	0	.....	3	15.62
Fort Ontario, N. Y	0	.....	3	14.71
Fort Warren, Mass	0	.....	3	16.13
13 posts, not included above, had 2 cases each in 1909	26	.....	.....	.....
11 posts, not included above, had 2 cases each in 1908	.....	.....	22	.....
29 posts, not included above, had 1 case each in 1909	29	.....	.....	.....
24 posts, not included above, had 1 case each in 1908	.....	.....	24	.....
Field, not included above, 4 cases for 1909	4	.....	.....	.....
Camps of instruction and field, not included above, 4 cases for 1908	.....	.....	4	.....
Total for the year	271	.....	189	.....

INSANITY.

The admission rate for insanity for the United States was 1.63 per 1,000, as compared with 1.58 for 1908 and 1.79 for 1907.

ALCOHOLISM.

From 1898 to 1907 the number of admissions from this cause steadily increased, the ratio for the latter year being 36.09 per 1,000, but the figure for 1908 was 30.31, which showed a decided diminution, and for this year the ratio is 24.98, showing a still further decrease.

VENEREAL DISEASES.

The rates for the total venereal diseases for 1909 for the United States were: Admissions 177.46, discharges 3.28, and total noneffective 11.44, as compared with 174.84, 2.73, and 10.63, respectively, for 1908. These figures show an increase over last year, and the total noneffective rate for these diseases for 1909 is the highest on record in

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this office, although in admission rate it was exceeded in 1905. As usual, the colored troops show a much higher admission rate than do the white, the ratios being 217.24 and 176.04, respectively, but show a decrease as compared with their own race for the preceding year. The following table gives the comparative rates for the past five years for each of these diseases:

TABLE No. 24.—*Venereal diseases, by years, 1905 to 1909, United States, continental (excluding Alaska).*

	Admitted.			Discharged on surgeon's certificate of disability.			Died.			Noneffective.		
	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.	Total.	White.	Colored.
Gonorrhea and results:												
1909	125.27	124.49	147.37	1.36	1.34	2.08	.....	.....	.....	7.22	7.23	7.02
1908	123.50	123.05	151.93	1.06	1.08	.....	.....	.....	.....	6.71	6.72	6.18
1907	107.68	107.68	107.59	1.39	1.37	1.92	0.03	.....	0.96	6.24	6.29	4.63
1906	105.21	106.11	91.49	1.07	1.11	.40	.02	0.03	.....	6.18	6.29	4.48
1905	118.31	120.12	92.05	1.29	1.25	1.80	.02	.03	.....	6.26	6.46	4.08
Chancroid:												
1909	25.33	25.09	32.13	.....	.....	.....	.....	.....	.....	1.54	1.52	2.03
1908	28.20	27.64	63.54	.04	.02	1.38	.....	.....	.....	1.75	1.71	4.38
1907	34.78	34.38	48.03	.....	.....	.....	.....	.....	.....	2.23	2.21	2.73
1906	26.41	26.01	32.65	.05	.03	.40	.....	.....	.....	1.73	1.69	2.48
1905	30.39	30.27	31.85	.05	.05	.....	.....	.....	.....	1.90	1.88	2.08
Syphilis:												
1909	26.85	26.47	37.74	1.92	1.81	5.19	.....	.....	.....	2.68	2.64	3.74
1908	23.15	22.46	66.30	1.62	1.64	.....	.04	.04	.....	2.17	2.14	3.46
1907	25.36	25.43	23.05	2.36	2.43	.....	.....	.....	.....	2.75	2.76	2.45
1906	27.28	27.34	26.20	2.79	2.90	1.19	.05	.03	.40	2.98	3.02	2.40
1905	30.02	30.40	25.54	3.32	3.37	2.70	.02	.....	.30	2.88	2.93	2.34
Total venereal:												
1909	177.46	176.04	217.24	3.28	3.14	7.27	.....	.....	.....	11.44	11.39	12.79
1908	174.84	173.14	281.77	2.73	2.75	1.38	.04	.04	.....	10.63	10.57	14.02
1907	167.82	167.49	178.67	3.74	3.80	1.92	.03	.....	.96	11.22	11.26	9.81
1906	158.91	159.47	150.34	3.91	4.03	1.98	.07	.05	.40	10.90	11.00	9.36
1905	178.72	180.70	154.44	4.66	4.66	4.51	.04	.03	.30	11.05	11.27	8.50

The venereal peril has come to outweigh in importance any other sanitary question which now confronts the army and neither our national optimism nor the Anglo-Saxon disposition to ignore a subject which is offensive to public prudery can longer excuse a frank and honest confrontation of the problem. There is no reason to think that these diseases are beyond the reach of preventive medicine any more than other contagious diseases and their immunity from restriction must be attributed to the public disinclination to discuss them and legislate concerning them. It is now believed by most sociologists as well as sanitarians that the evil being primarily a social one can only be reached by a propaganda of public discussion and education, and that education in sexual matters and in the danger of venereal diseases should begin with the young and be carried on by means of all the agencies of popular enlightenment. A number of state and municipal health authorities as well as private associations are now publishing and distributing literature on this subject. It is believed that the War Department can not do better than adopt this general attitude and many of these methods, including a philosophical indifference to criticism on the part of self-constituted censors of the public morals whose susceptibilities are offended by a public discussion of these questions.

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This office on the 25th of January, 1909, called the attention of medical officers throughout the army by circular letter to the importance of making a vigorous and sustained effort to prevent the spread of these diseases.

Reports since the Spanish-American war show a steady and progressive increase in this class of diseases, so that the admission rate, which was 84.59 per 1,000 in 1897, has now reached the enormous figure of 196.99 per 1,000. These figures are out of all proportion to those which obtain in the European armies, the rates for the latter being according to the latest obtainable information—

British (at home 68.4)	75.8
Austro-Hungarian	54.2
French (at home 27.8)	34.8
Prussian	18.7
Bavarian	15.2

Among the measures which have been found most successful in other services in controlling this disease have been the following:

1. The organization of soldiers' clubs, canteens, etc., where enlisted men can find amusement and recreation sufficiently attractive to keep them at home and away from vile resorts.

2. The formation of temperance associations among the enlisted men, the association of intemperance and venereal indulgence being well understood.

3. The early detection of all cases of venereal diseases by periodical physical examination of the men stripped.

4. Keeping all cases of venereal disease under continuous observation and treatment until they are cured. For this purpose venereal registers are kept, and a case once on the books is never lost sight of until cured. Should a man be transferred while under treatment to another post or station, his venereal history goes with him.

5. Instruction of the men by lectures and by informal advice whenever the opportunity offers as to the nature of venereal diseases, the extent of their prevalence among prostitutes, and the grave peril not only to those who contract them, but to their families and posterity. They should also be taught that sexual intercourse is not necessary to good health and the highest degree of mental and physical vigor.

6. Approved measures of personal prophylaxis of those who will, contrary to advice, expose themselves to venereal infection. All the principal European armies, with the exception of that of Great Britain, have officially authorized or directed the use of such prophylactic measures, and a considerable degree of success has attended their use. In some of the Austrian garrisons this system is said to have effected a decrease of 62 per cent in the cases of venereal disease. In the German army equally good results have been reported. The general procedure in all the armies is about the same, though there are slight differences in the details, especially in regard to the particular antiseptic employed.

The importance of personal cleanliness was emphasized and suggestions made for the providing of appropriate prophylactic preparations, where they would be accessible to men who desired to use them.

Many medical officers became interested in the matter and made more or less successful efforts to carry out the suggestions contained in this letter. As, however, in the similar question of typhoid inocu-

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lations, it was found that success or failure depended not only upon the zeal and enthusiasm of the medical officer, but upon his success in arousing the interest and securing the cooperation of his commanding officer. The commanding generals of the Departments of California and the East issued instructions to all commanding officers in their departments to cooperate with the post surgeons in the matter. This official support has been of great value. The general commanding the Department of California expressed his opinion that it would have been advisable to have issued the circular letter of recommendation referred to primarily through the official channels of the War Department, and stated:

> I think that we should look this and similar questions fairly in the face and take such action through the proper channels as may be necessary, as this latter course is, in my judgment, the only way to bring about the proper and the best results.

The experience of the past year has demonstrated that in this he is right, and that in this question, which is so vital to the efficiency of the army, substantial progress can only be made by supporting the efforts of the Medical Department with all the power and energy of the military authority.

The United States Navy has suffered to a like degree in its efficiency from venereal diseases and has been in advance of the army in a resolute and rational effort to meet the danger. While the service afloat has a much higher degree of control over the movements of the enlisted men than the land service, and it is correspondingly easier to exercise supervision over their movements, it is believed that the methods pursued there are substantially applicable to the army, and the exercise of military authority involved is not such as is in any way excessive for commanding officers of the army. In brief, it is required that when a sailor returns from pass or other absence he is required when he reports to state to the officer or noncommissioned officer who receives the report whether he has within the past twenty-four hours exposed himself to the risk of contracting venereal disease. If this is admitted he is sent to the hospital for the application of preventive measures. If it is subsequently ascertained that in cases where exposure is denied the enlisted man has told an untruth, he is punished for so doing either by a court-martial or by the withdrawal of privileges.

With certain changes in detail, it is believed that this method can be applied with equal success in the army. Men whose absence will be for more than twenty-four hours or who for other reasons desire it are given an opportunity to take with them a convenient packet for personal cleansing and disinfection. Objection has been made by certain theorists that steps taken to reduce the dangers of illicit intercourse will, by removing the restraining influences of fear of infection, act as an indirect encouragement to vice. This argument can only be admitted if it could be shown that fear does effectually control so imperious and basic an instinct as that with which we have to deal. On the contrary, it has been found in the experience of the navy that a serious treatment of this question by the military and medical authorities and the instruction of the men in the danger of venereal infection and in sexual hygiene generally have resulted in a steady increase of the percentage of those denying exposure in commands where this system is put into practice.

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The following statement occurs in a recent report from the Asiatic Station:

The percentage of "denials of exposure" was 67.75

There has been a constant monthly increase of this percentage, and this—or what amounts to the same thing, a steady diminution of the number admitting exposure—may have some ethical significance. The prominence given to the question of venereal disease by commanding and medical officers, the talks on personal hygiene, the institution of the prophylactic scheme in itself, have, in the writer's opinion, been beneficial by bringing the better class of men to a greater realization of the evils frequently resulting from exposure, and by stimulating a latent moral sense. In any event, there is no reason to think that a sense of security engendered by the scheme has caused any increase in indulgence. The claim that the scheme will cause a great number of concealments of disease has also been refuted on the *Charleston* by a recent examination of the entire crew, not a single case of concealed disease being found.

Effective work along the lines indicated above has been accomplished at a few posts during the past year, at which have been found the necessary conjunction of a zealous medical officer and a commanding officer thoroughly interested in the matter and willing to energetically support the efforts of the medical officer. A notable example was Fort Shafter, Hawaii, where measures were undertaken for the instruction of the men and the necessary sanitary inspections in July, 1909. The average number for the first seven months of the year for primary venereal diseases was 15, while the average for the last five months of the year was 10 and for the first six months of 1910 has been 6.66.

Notably effective preventive work has also been reported from Ludlow Barracks, Parang, Mindanao. At this post all men being treated for venereal diseases or found infected with them at the sanitary inspections were kept within the limits of the post as long as the disease was in a contagious stage, and all commands joining at the post were promptly examined in order to control the importation of new sources of infection. The sanitary authorities of the town of Parang likewise inspected the public women and segregated those found to be diseased, with the result that the number of cases fell to less than one-third of the former average and of this reduced number most were contributed by the taking up of cases discovered on inspections in the incoming garrisons.

In spite of the good work performed at a few posts in the army the effort has not been general enough nor long continued enough to affect the incidence of these diseases in the army as a whole, nor is it probable that much can be effected in the future unless the matter is taken up with energy and determination by the military authorities and pushed as a fixed policy of the War Department.

UNCINARIASIS.

Uncinariasis has been this year, as last, a subject upon which a considerable amount of work has been done by medical officers, both in the United States and in our insular possessions.

Out of 148 southern-bred recruits examined at Fort Slocum, N. Y., up to November 17, 1909, there were 115 infected with hook worm. According to last annual report of 135 southern-bred recruits or soldiers examined at Jackson Barracks, La., 66 were found infected with hook worm. At Jefferson Barracks, Mo., during the months of

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December, 1909, January and February, 1910, all southern-bred recruits enlisted were examined for hook worm and 10 out of 148 examined were found infected, Missouri being counted as a Southern State.

At Columbus Barracks, Ohio, during about the last 14 months, routine examination of the stool of all southern-bred recruits admitted to the hospital for any cause whatever were examined by Capt. Theodore Lamson and by Capt. Albert G. Love, and the following table is taken from the report made by Captain Love:

State and section.	Examined.	Infected.	Per cent infected.	Necator americanus.		Ascaris lumbricoides.		Strongyloides intestinalis.		Trichocephalus dispar.	
				Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Kentucky (eastern half)	90	33	36⅔	23	25⅝	19	21⅛	3	3⅓	8	8⅞
Tennessee (eastern third)	41	19	46 14/41	7	17 7/41	11	26 24/41	3	7 3/41	.....	.....
North Carolina (western fourth)	41	19	46 14/41	13	31 29/41	4	9 3/41	4	9 3/41	.....	.....
West Virginia (entire State)	30	6	20	2	6⅔	3	10	2	6⅔	.....	.....
Virginia (western third)	24	9	37½	7	29⅙	2	8⅓	1	4⅙	1	4⅙
Georgia (northern fourth)	19	8	42 7/19	8	42 7/19	.....	.....	.....	.....	.....	.....
South Carolina (northeastern sixth)	10	2	20	2	20	.....	.....	.....	.....	.....	.....
Alabama (northeastern tenth)	5	3	60	3	60	.....	.....	.....	.....	.....	.....
Other Southern States	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Entire section	264	99	37½	65	24 41/66	39	14 41/66	13	4 29/66	9	3 3/22

This table is of interest, as it shows both the area of distribution of the hook worm, the percentage varying according to the location, and other intestinal nematodes found in the men examined. At this post one recruit bred in Ohio and one in New Jersey were found infected with hook worm, and one man from Indiana showed infection with *Ascaris lumbricoides* and with *Trichocephalus dispar*, and one with only the latter. In the table each man was counted only once, although there were many multiple infections.

At Fort Slocum, Jackson Barracks, and Jefferson Barracks the "Bass method" of examination was used. At Columbus Barracks a saline was first given and two cover-glass specimen examined of the resulting stool. Apparently the great difference in the per cent found infected at the various depots is largely due to the area from which each depot receives it recruits. This is determined by the cost of transportation to the Government. Thus Fort Slocum's area is approximately east of the area of Columbus Barracks, along the Atlantic seaboard, Jackson Barracks south, along the Gulf coast, and Jefferson Barracks west, Mississippi Valley region.

Out of a total of 695 southern-bred recruits (including a few soldiers at Jackson Barracks) examined at Fort Slocum, N. Y., Jackson Barracks, La., Jefferson Barracks, Mo., and Columbus Barracks, Ohio. 256 men were found infected with hook worm, this being 36.8 per cent.

The tropical board reports that during the last few years there were 19,744 Americans admitted to the division hospital, Manila, and the hospital at Fort William McKinley, P. I. Of this number 90 were found to be infected with hook worm. It is not known how many

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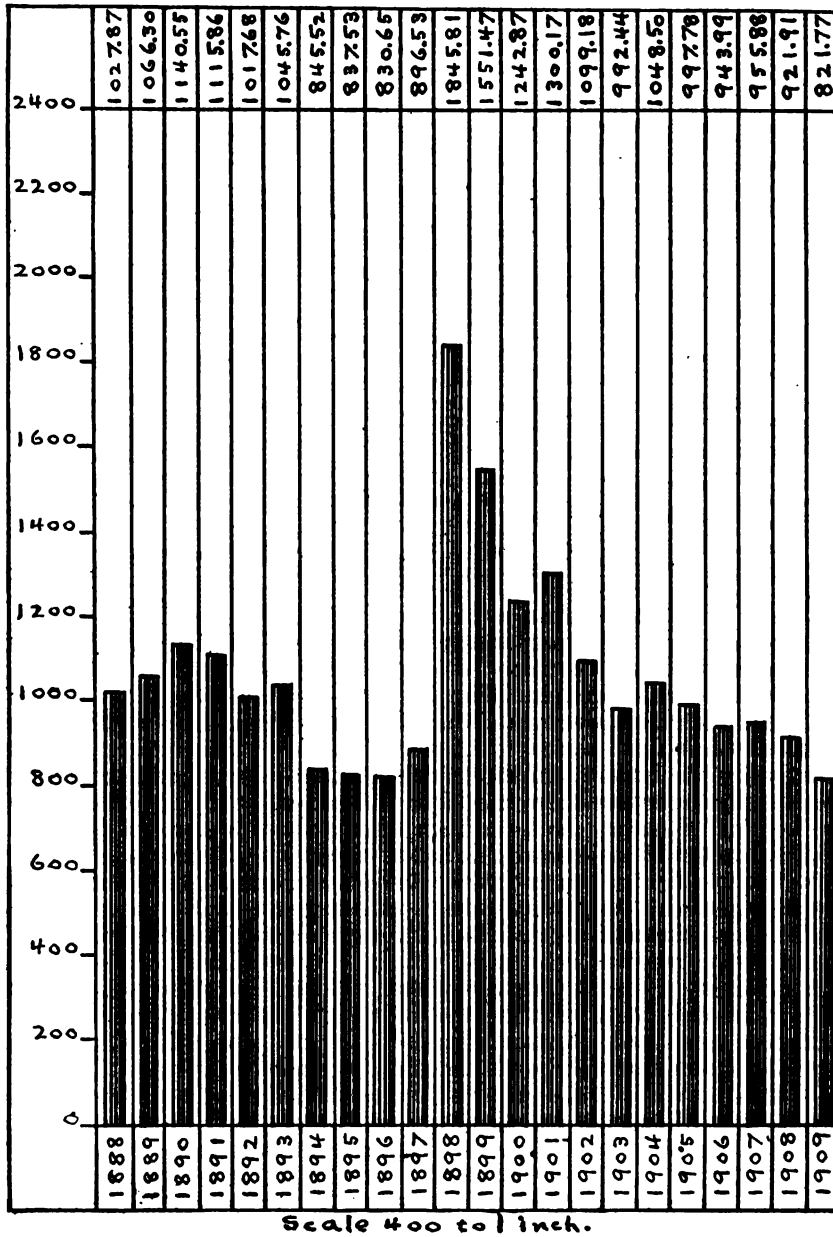
CHART R.—*Showing the total admission rate for disease, by years, since 1888, for the United States proper.*



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examinations were made. The birth place of these Americans is given below.

Alabama	5	Kansas	2
West Virginia	5	New Jersey	2
Virginia	2	Washington	1
North Carolina	4	Minnesota	1
Georgia	3	Pennsylvania	1
Missouri	2	New Hampshire	1
Tennessee	4	Illinois	5
South Carolina	1	Wisconsin	2
Kentucky	11	No State named	6
Mississippi	2	Holland	1
Louisiana	1	Ireland	5
Texas	2	Sweden	1
Florida	2	Scotland	1
Massachusetts	3	Denmark	1
Indiana	2	Italy	1
Ohio	4	Hungary	1
New York	4	Russia	1

On account of so many of these men being from Northern States, the very pertinent question of the place and manner of infection is raised by the board.

Since our soldiers in the Philippine Islands wear shoes, the question of some other method of infection than through the skin is to be considered.

INFLUENCE OF STATION.

The post having the highest admission rate this year was Fort Mott, N. J., which post also had this unenviable record in 1908. Its total noneffective rate, while above the general rate for the United States, was not as excessive as the admission rate. Jackson Barracks, La., has the second highest admission rate and a higher noneffective rate than Fort Mott. Fort Lincoln, N. Dak., had the lowest admission rate from all causes for the year. The Presidio of Monterey, Cal., had the second lowest admission rate, as was the case last year. The highest total noneffective rate is charged to Fort Ontario, N. Y., with Fort Caswell, N. C., the second highest. The lowest total noneffective rate was at Fort Meade, S. Dak., and the second lowest, Fort Lincoln, N. Dak. Of the recruit depots, Columbus Barracks had the highest admission and noneffective rates. The Department of the Lakes had the highest admission, death, and noneffective rates, and also the highest admission rates for venereal diseases, diarrhea, and articular rheumatism. The Department of the Dakota, which is second in noneffective rate, had the highest admission rates for bronchitis, tonsillitis, and tuberculosis. The Department of California had the lowest admission rate for typhoid fever. The Department of the Colorado had the lowest record for venereal diseases. The occurrence of the various diseases by military departments is shown in Table 69.

The following tables, Nos. 25 and 26, show the posts having the highest and lowest ratios for admissions and noneffectiveness in the United States as a whole:

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Military departments, United States, continental (excluding Alaska), showing the relative admission rates for disease.

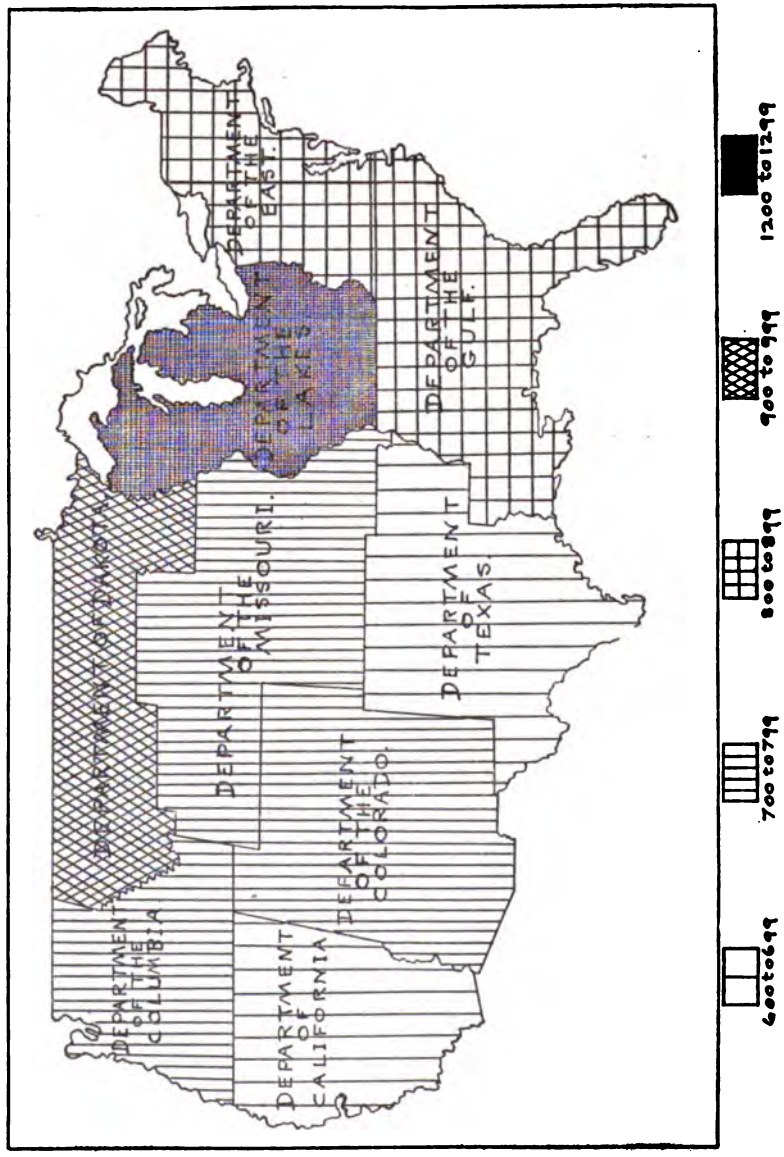

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TABLE No. 25.—*Posts having the highest admission and noneffective rates, 1909.*[a]

	Mean strength.	Ratios per 1,000 of mean strength.												Average number of days lost.			
		Admissions to sick report.		Discharged on surgeon's certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.	
										From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.					
		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.	Total.	In hospital.	For each soldier.	For each case.	For each soldier.	For each case.
Highest admission rates from all causes.																	
Fort Mott, N. J.	301	**2,720.93**	1,983.39	33.22	26.58	3.32	.....	36.54	26.58	44.70	30.68	25.83	16.35	16.32	6.00	9.43	4.75
Jackson Barracks, La.	210	**1,790.48**	1,209.52	23.81	14.29	.....	.....	23.81	14.29	49.33	47.08	26.95	25.44	18.00	10.06	9.84	8.13
Fort Thomas, Ky.	499	**1,541.08**	941.88	14.03	10.02	6.01	2.00	20.04	12.02	50.63	41.13	26.96	21.70	18.48	11.99	9.84	10.45
Fort Ontario, N. Y.	204	**1,524.51**	720.59	49.02	14.71	.....	.....	49.02	14.71	57.01	42.60	23.74	18.57	20.81	13.65	8.67	12.03
Fort Assinnniboine, Mont.	253	**1,450.59**	984.19	23.72	15.81	.....	.....	23.72	15.81	36.86	34.75	23.61	22.19	13.45	9.28	8.62	8.76
Highest admission rates, excluding injuries, etc.																	
Fort Mott, N. J.	301	2,720.93	**1,983.39**	33.22	26.58	3.32	.....	36.54	26.58	44.70	30.68	25.83	16.35	16.32	6.00	9.43	4.75
Jackson Barracks, La.	210	1,790.48	**1,209.52**	23.81	14.29	.....	.....	23.81	14.29	49.33	47.08	26.95	25.44	18.00	10.06	9.84	8.13
Fort Assinniboine, Mont.	253	1,450.59	**984.19**	23.72	15.81	.....	.....	23.72	15.81	36.86	34.75	23.61	22.19	13.45	9.28	8.62	8.76
Fort Caswell, N. C.	343	1,329.45	**959.18**	17.49	11.66	2.92	2.92	20.41	14.58	53.52	40.49	31.84	26.02	19.53	14.69	11.75	12.25
Fort Thomas, Ky.	499	1,541.08	**941.88**	14.03	10.02	6.01	2.00	20.04	12.02	50.63	41.13	26.96	21.70	18.48	11.99	9.84	10.45
Highest noneffective rates from all causes.																	
Fort Ontario, N. Y.	204	1,524.51	720.59	49.02	14.71	.....	.....	49.02	14.71	**57.01**	42.60	23.74	18.57	20.81	13.65	8.67	12.03
Fort Caswell, N. C.	343	1,329.45	959.18	17.49	11.66	2.92	2.92	20.41	14.58	**53.52**	40.49	31.84	26.02	19.53	14.69	11.75	12.25
Fort Thomas, Ky.	499	1,541.08	941.88	14.03	10.02	6.01	2.00	20.04	12.02	**50.63**	41.13	26.96	21.70	18.48	11.99	9.84	10.45
Fort Snelling, Minn.	1,107	1,397.47	876.24	27.10	18.97	6.32	1.81	33.42	20.78	**50.57**	41.09	27.72	22.52	18.46	13.21	10.12	11.55
Jackson Barracks, La.	210	1,790.48	1,209.52	23.81	14.29	.....	.....	23.81	14.29	**49.33**	47.08	26.95	25.44	18.00	10.06	9.84	8.13
Highest noneffective rates, excluding injuries, etc.																	
Fort Caswell, N. C.	343	1,329.45	959.18	17.49	11.66	2.92	2.92	20.41	14.58	53.52	40.49	**31.84**	26.02	19.53	14.69	11.75	12.25
Fort Snelling, Minn.	1,107	1,397.47	876.24	27.10	18.97	6.32	1.81	33.42	20.78	50.57	41.09	**27.72**	22.52	18.46	13.21	10.12	11.55
Fort Brady, Mich.	212	1,113.21	627.36	14.15	9.43	9.43	.....	23.58	9.43	49.06	45.35	**27.58**	26.21	17.91	16.08	10.07	16.05
Fort Thomas, Ky.	499	1,541.08	941.88	14.03	10.02	6.01	2.00	20.04	12.02	50.63	41.13	**26.96**	21.70	18.48	11.99	9.84	10.45
Jackson Barracks, La.	210	1,790.48	1,209.52	23.81	14.29	.....	.....	23.81	14.29	49.33	47.08	**26.95**	25.44	18.00	10.06	9.84	8.13

[a] Recruit depots not considered.

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TABLE No. 26.—*Posts having the lowest admission and noneffective rates for 1909.*[a]

	Mean strength.	Ratios per 1,000 of mean strength.												Average number of days lost.			
		Admissions to sick report.		Discharged on surgeon's certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.	
										From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.					
		From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Excluding injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.	Total.	In hospital.	For each soldier.	For each case.	For each soldier.	For each case.
Lowest admission rates from all causes.																	
Fort Lincoln, N. Dak	294	**605.44**	346.94	.....	.....	.....	.....	.....	.....	17.17	16.21	6.55	6.22	6.27	10.35	2.39	6.89
Presidio of Monterey, Cal	932	**609.44**	332.62	2.15	2.15	5.36	2.15	7.51	4.30	18.35	16.77	8.86	8.32	6.70	10.99	3.23	9.72
Fort Niagara, N. Y	313	**632.59**	437.70	.....	.....	12.78	6.39	12.78	6.39	21.19	18.89	16.45	15.17	7.73	12.23	6.00	13.72
Fort Ethan Allen, Vt	635	**642.52**	270.87	7.87	6.30	6.30	3.15	14.17	9.45	23.63	21.61	9.34	8.31	8.63	13.42	3.41	12.59
Fort McIntosh, Tex	271	**653.14**	365.31	7.38	7.38	.....	.....	7.38	7.38	40.00	35.82	18.87	16.57	14.60	22.36	6.89	18.86
Lowest admission rates, excluding injuries, etc.																	
Fort Ethan Allen, Vt	635	642.52	**270.87**	7.87	6.30	6.30	3.15	14.17	9.45	23.63	21.61	9.34	8.31	8.63	13.42	3.41	12.59
Fort Revere, Mass	223	780.27	**318.39**	4.48	4.48	4.48	4.48	8.96	8.96	28.71	24.95	9.44	8.66	10.48	13.43	3.44	10.84
Presidio of Monterey, Cal	932	609.44	**332.62**	2.15	2.15	5.36	2.15	7.51	4.30	18.35	16.77	8.86	8.32	6.70	10.99	3.23	9.72
Fort Lincoln, N. Dak	294	605.44	**346.94**	.....	.....	.....	.....	.....	.....	17.17	16.21	6.55	6.22	6.27	10.35	2.39	6.89
Fort McIntosh, Tex	271	653.14	**365.31**	7.38	7.38	.....	.....	7.38	7.38	40.00	35.82	18.87	16.57	14.60	22.36	6.89	18.86
Lowest noneffective rates from all causes.																	
Fort Meade, S. Dak	564	695.04	381.21	10.64	1.77	1.77	1.77	12.41	3.54	**16.85**	16.35	6.96	6.72	6.15	8.85	2.54	6.66
Fort Lincoln, N. Dak	294	605.44	346.94	.....	.....	.....	.....	.....	.....	**17.17**	16.25	6.55	6.22	6.27	10.35	2.39	6.89
Presidio of Monterey, Cal	932	609.44	332.62	2.15	2.15	5.36	2.15	7.51	4.30	**18.35**	16.77	8.86	8.32	6.70	10.99	3.23	9.72
Fort Du Pont, Del	469	805.97	447.76	4.26	2.13	12.79	.....	17.05	2.13	**20.42**	17.80	11.22	9.69	7.45	9.25	4.09	9.14
Fort Schuyler, N. Y	300	680.00	423.33	10.00	6.67	.....	.....	10.00	6.67	**20.90**	19.84	13.84	13.40	7.63	11.22	5.05	11.94

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Lowest noneffective rates, excluding injuries, etc.																	
Fort Lincoln, N. Dak.	294	605.44	346.94	.....	.....	.....	.....	.....	.....	17.17	16.25	6.55	6.22	6.27	10.35	2.39	6.89
Fort Meade, S. Dak.	564	695.04	381.21	10.64	1.77	1.77	1.77	12.41	3.54	16.85	16.35	6.96	6.72	6.15	8.85	2.54	6.66
Fort Oglethorpe, Ga.	743	982.50	393.00	6.73	1.35	1.35	.....	8.08	1.35	27.76	26.20	7.92	7.37	10.13	10.31	2.89	7.35
Fort Stevens, Oreg.	346	754.34	401.73	17.34	8.67	.....	.....	17.34	8.67	21.81	20.76	7.99	7.73	7.96	10.56	2.92	7.26
Presidio of Monterey, Cal.	932	609.44	332.62	2.15	2.15	5.36	2.15	7.51	4.30	18.35	16.77	8.86	8.32	6.70	10.99	3.23	9.72
RECRUIT DEPOTS.																	
Columbus Barracks, Ohio	1,111	2,213.32	1,493.25	45.00	37.81	7.20	7.20	52.20	45.01	64.07	57.42	43.50	38.93	23.39	10.57	15.88	10.63
Fort Slocum, N. Y.	1,080	1,688.89	1,092.59	67.59	48.15	3.70	2.78	71.29	50.93	45.80	38.50	27.63	24.04	16.72	9.90	10.08	9.23
Jefferson Barracks, Mo.	1,052	1,273.76	853.61	52.28	36.12	4.75	1.90	57.03	38.02	39.59	36.37	22.21	19.89	14.45	11.35	8.11	9.50
Fort McDowell (including Angel Island), Cal. [b]	346	1,332.37	736.99	37.57	20.23	2.89	.....	40.46	20.23	34.39	30.60	15.23	14.07	12.55	9.42	5.56	7.54
Fort Logan, Colo. (Sept. 1 to Dec. 31, 1909) [c]	143	1,503.50	860.14	118.88	97.90	6.99	6.99	125.87	104.89	48.07	39.93	27.74	24.22	17.55	11.67	10.13	11.77

[a] Recruit depots not considered.
[b] Recruit depot, Angel Island, closed June 4, 1909, is consolidated for this purpose with Fort McDowell, Cal.; opened June 4, 1909, as a recruit depot.
[c] Fort Logan, Colo., opened as a recruit depot September 1, 1909. Its mean strength September 1 to December 31 was 428; averaged for the year, 143 men.

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INFLUENCE OF AGE AND LENGTH OF SERVICE.

As usual, the admission and discharge and noneffective rates were highest for the youngest soldiers and those serving their first enlistment, and the death rate was highest among those 45 years of age or over having ten years or more service. The lowest admission rate occurred in soldiers between 45 and 50 years of age, and the lowest constantly noneffective rate in those between 35 and 40.

The following table exhibits the effects of age and length of service upon rates for disease:

TABLE NO. 27.—*Influence of disease on troops serving in the United States, continental (excluding Alaska), by age and length of service, year 1909.*

Length of service.	Mean strength.	Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.	Ratios per 1,000 of mean strength.			
						Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.
Under 1 year	15,654	17,971	500	46	692.95	1,148.01	31.86	2.93	44.27
1 to 2 years	13,879	11,864	199	21	494.60	854.82	14.30	1.51	35.64
2 to 3 years	5,910	4,353	43	8	173.24	736.55	7.26	1.35	29.31
3 to 4 years	4,298	2,505	57	14	133.39	582.83	13.23	3.25	26.38
4 to 5 years	3,541	2,199	46	8	91.85	621.01	12.96	2.25	25.94
5 to 10 years	7,876	4,799	80	26	202.40	609.32	10.13	3.29	25.70
10 years and over	5,966	3,252	49	47	149.17	545.09	8.19	7.86	25.00
Total	57,124	46,943	974	170	1,917.61	821.78	17.01	2.97	33.57

Age.	Mean strength.	Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.	Ratios per 1,000 of mean strength.			
						Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective
19 years and under	2,820	3,458	69	7	123.26	1,226.24	24.41	2.48	43.71
20 to 24 years	24,753	24.615	458	58	961.75	994.42	18.45	2.34	38.85
25 to 29 years	15,614	11,167	273	32	480.96	715.19	17.44	2.04	30.80
30 to 34 years	7,515	4,316	105	25	188.06	574.32	13.93	3.32	25.02
35 to 39 years	3,432	1,816	38	19	81.33	529.14	11.04	5.52	23.70
40 to 44 years	1,732	912	19	16	43.56	526.56	10.94	9.22	25.15
45 to 49 years	900	414	9	7	22.14	460.00	9.98	7.76	24.60
50 years and over	358	245	3	6	16.55	684.36	8.30	16,71	46.23
Total	57,124	46,943	974	170	1,917.61	821.78	17.01	2.97	33.57

INFLUENCE OF SEASON.

Excluding venereal diseases, alcoholism, and injuries, the highest admission, death, and constantly noneffective rates occurred in March. The lowest admission rate was in November, and the lowest death and constantly noneffective rates were in October. The following table (No. 28) shows the movement of sick by months. A study of these data for previous years shows a wide variation in the months

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showing the several highest and lowest rates. It can be stated, however, in general terms that all rates are highest in the first half of the year and lowest in the second half. February and March give the highest constantly noneffective rates and June–July the lowest.

TABLE No. 28.—*Influence of season, United States, continental (excluding Alaska), year 1909.*

Month.	Mean strength.	Ratios per 1,000 of mean strength.								Prevailing diseases (exclusive of venereal diseases, etc.)
		All causes.					Exclusive of venereal diseases, alcoholism, vaccinia, and injuries.			
		Admissions.		Deaths.	Noneffective.		Admissions.	Deaths.	Noneffective.	
		Total.	Hospital.		Total.	Hospital.				
Jan.....	56,078	98.54	75.68	0.49	41.51	36.61	59.35	0.24	22.15	Tonsillitis, 558; acute bronchitis, 230; influenza, 164; muscular rheumatism, 135.
Feb.....	58,261	91.76	71.69	.42	41.26	36.06	58.48	.26	23.39	Tonsillitis, 507; influenza, 281; acute bronchitis, 219; muscular rheumatism, 118.
Mar.....	58,846	111.83	84.18	.51	45.33	39.27	75.13	.34	26.55	Influenza, 703; tonsillitis, 604; acute bronchitis, 307.
Apr.....	57,802	98.96	77.25	.44	44.98	39.39	62.61	.31	26.19	Influenza, 407; tonsillitis, 397; acute bronchitis, 199.
May.....	56,956	81.89	61.22	.46	40.75	35.91	48.16	.28	23.24	Tonsillitis, 247; acute bronchitis, 140; constipation, 122; muscular rheumatism, 122.
June....	56,189	80.55	60.42	.52	39.49	35.06	44.55	.25	21.89	Tonsillitis, 159; furuncles, 139; malarial diseases, 138; constipation, 126.
July.....	55,261	81.72	59.99	.36	38.41	33.88	45.08	.14	20.35	Diarrhea and enteritis, 234; malarial diseases, 163; furuncles, 155; dyspepsia, 125.
Aug.....	56,722	82.59	61.54	.37	36.63	32.55	47.99	.18	19.40	Diarrhea and enteritis, 314; malarial diseases, 257; dyspepsia, 180; tonsillitis, 151; furuncles, 150.
Sept....	56,867	70.90	53.10	.28	35.23	31.35	39.69	.19	18.59	Malarial diseases, 210; diarrhea and enteritis, 210; dyspepsia, 165; furuncles, 133; tonsillitis, 125.
Oct.....	57,478	74.03	56.21	.26	35.38	31.17	38.01	.12	17.92	Malarial diseases, 157; diarrhea and enteritis, 141; tonsillitis, 137; acute bronchitis, 128; furuncles, 124.
Nov.....	57,399	73.26	56.69	.40	37.71	33.84	37.44	.24	18.55	Tonsillitis, 305; acute bronchitis, 150; furuncles, 106; muscular rheumatism, 105.
Dec.....	57,630	77.39	60.63	.36	38.25	34.42	42.79	.27	19.12	Tonsillitis, 380; acute bronchitis, 198; muscular rheumatism, 126; influenza, 106.
Total .	57,124	1,024.37	779.48	4.84	39.70	35.06	600.29	2.85	21.51	Tonsillitis, 3,685; influenza, 1,992; acute bronchitis, 1,935; diarrhea and enteritis, 1,603; coryza, 1,491; muscular rheumatism, 1,416; furuncles, 1,414.

INFLUENCE OF RACE.

For 1909 the rates for admission and noneffectiveness were higher for the white troops, and the rates for discharges and deaths higher for the colored troops in the United States (continental). Last year

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the white troops had the higher admission and discharge rates and the colored troops the higher total noneffective and death rates.

The relative prevalence of the several diseases in the two races are shown in Table No. 62 at the end of this report.

DISCHARGES FOR DISABILITY.

The disability discharge rate for the United States for 1909 was 18.87 per 1,000, as compared with 21.35 for 1908 and 25.36 and 32.29 for 1907 and 1906, respectively. The causes of this steady improvement are the same for the United States and for the whole army and are explained in connection with the figures for the latter.

The principal causes of discharges, with the percentages of discharges, were as follows: (1) Venereal diseases, 19.30; (2) tuberculosis, 12.32; (3) diseases of the heart, 8.43; (4) insanity, 8.11; (5) epilepsy, 5.24. The proportion of those discharged for disability contracted previous to enlistment to the total discharges was 40 per cent.

The following table shows the causes of discharges for disability for the year 1909, United States (continental):

TABLE No. 29.—*Discharges for disability, year 1909, United States, continental (excluding Alaska).*

Cause of discharge.	Number discharged.	Percentage of total discharges.	Discharges for disability.						
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.		January to August, inclusive.	September to December, inclusive.
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.		
General diseases	396	40.66	152	62	182	2	25	323	73
Venereal diseases	188	19.30	2	21	165	.....	13	169	19
Syphilis (primary, 1; secondary, 88; tertiary, 21)	110	11.29	1	9	100	.....	6	102	8
Gonorrhea (rheumatism, 57; chronic gonorrhea, 9; ophthalmia, 5; orchitis, 5; fistula, 1; other results, 1)	78	8.01	1	12	65	.....	7	67	11
Tuberculosis (of the lungs, 111; other organs, 9)	120	12.32	110	10	.....	.....	2	77	43
Chronic articular rheumatism	23	2.36	16	7	.....	.....	2	20	3
Chronic alcoholism	19	1.95	.....	9	10	.....	8	19	.....
Drug habit (cocaine, 9; opium, 4)	13	1.33	.....	6	7	.....	.....	11	2
Diabetes	7	.72	5	2	.....	.....	.....	4	3
Exophthalmic goiter	7	.72	2	5	.....	.....	.....	6	1
Chronic amœbic dysentery	5	.51	5	.....	.....	.....	.....	5	.....
Cancer	3	.31	3	.....	.....	.....	.....	2	1
Cerebrospinal meningitis	2	.21	2	.....	.....	.....	.....	1	1
Acute articular rheumatism	2	.21	1	1	.....	1	.....	2	.....
Chronic malarial cachexia	1	.10	1	.....	.....	.....	.....	1	.....
Leprosy	1	.10	1	.....	.....	.....	.....	1	.....
Results of septic infection	1	.10	1	.....	.....	1	.....	1	.....
Tumor (nonmalignant)	1	.10	1	.....	.....	.....	.....	1	.....
Obesity	1	.10	.....	1	.....	.....	.....	1	.....
Leukemia	1	.10	.....	1	.....	.....	.....	1	.....
Chronic plumbism	1	.10	1	.....	.....	.....	.....	1	.....
Diseases of the nervous system	176	18.07	62	105	9	.....	27	132	44
Insanity	79	8.11	40	31	8	.....	1	48	31
Epilepsy	51	5.24	3	47	1	.....	17	45	6
Neurasthenia	17	1.75	7	10	.....	.....	.....	16	1
Other diseases of the nervous system (unstable nervous organization, 8; hysteria, 2; stammering, 1; syncope, 1; hereditary tremors, 1)	13	1.33	1	12	.....	.....	7	8	5
Chronic neuralgia	4	.41	1	3	.....	.....	1	4	.....

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TABLE No. 29.—*Discharges for disability, year 1909, United States, continental (excluding Alaska)*—Continued.

Cause of discharge.	Number discharged.	Percentage of total discharges.	Discharges for disability.						
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.		January to August, inclusive.	September to December, inclusive.
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.		
Diseases of the nervous system—Continued.									
Neuritis	3	.31	2	1			1	3	
Locomotor ataxia	3	.31	3					2	1
Paralysis without specified cause	3	.31	3					3	
Chorea	2	.21	1	1				2	
Lateral sclerosis	1	.10	1					1	
Diseases of the circulatory system	94	9.65	49	41	4	6	10	76	18
Organic disease of the heart	60	6.16	39	21		5	6	48	12
Functional disease of the heart	18	1.85	4	12	2	1	3	16	2
Varicose veins	4	.41	1	3				2	2
Aneurism	3	.31		2	1			3	
Arterio sclerosis	3	.31	3					2	1
Angina pectoris	2	.21	1	1			1	2	
Cardiac neurosis	2	.21		1	1			2	
Cerebral thrombosis	1	.10	1						1
Varicocele	1	.10		1				1	
Congenital malformations and arrested development	65	6.67		65			10	52	13
Diseases of the digestive system	64	6.57	30	32	2		11	52	12
Hernia	30	3.08	13	17			7	25	5
Chronic gastritis	9	.92	1	7	1		1	7	2
Appendicitis	7	.72	4	3			1	5	2
Cirrhosis of the liver	3	.31	3					2	1
Chronic dyspepsia	3	.31		3				3	
Chronic gastro-enteritis	3	.31	3					2	1
Chronic diarrhea	2	.21	1		1			2	1
Pyorrhea alveolaris	1	.10	1					1	
Chronic pharyngeal and eustachian catarrh	1	.10	1					1	
Chronic gastric ulcer	1	.10		1			1	1	
Ankylostomiasis	1	.10	1					1	
Chronic constipation	1	.10	1					1	
Ischio-rectal fistula	1	.10		1			1	1	
Hepatic abscess (amœbic)	1	.10	1						1
Diseases of the organs of special sense	53	5.44	24	27	2		4	47	6
Diseases of the middle and internal ear (otitis media, 18; deafness, 4)	22	2.26	10	12			2	18	4
Diseases of the globe (iritis, 3; vitreous opacities, 3; keratitis, 2; retro-bulbar neuritis, 1; central scotoma, 1)	10	1.03	9	1			1	10	
Errors of refraction	5	.51		5				5	
Trachoma	3	.31		3				3	
Cataract	3	.31	2		1			2	1
Amblyopia	3	.31	2	1				3	
Chronic conjunctivitis	2	.21		2				2	
Chronic blepharitis	1	.10		1				1	
Asthenopia	1	.10		1			1	1	
Night blindness	1	.10		1					1
Optic neuritis	1	.10			1			1	
Complete destruction right ear drum	1	.10	1					1	
Diseases of the genito-urinary system	48	4.93	16	32		1	14	42	6
Diseases of the bladder (enuresis, 25; cystitis, 1)	26	2.67	1	25			11	24	2
Diseases of the kidneys (Brights disease, 15; pyelitis, 1; nephrolithiasis, chronic, 1)	17	1.75	14	3		1	1	13	4
Orchitis	2	.21	1	1				2	
Multiple urinary fistulæ	1	.10		1			1	1	
Hydrocele	1	.10		1			1	1	
Undescended testicle	1	.10		1				1	
Diseases of the organs of locomotion	39	4.00	23	16			1	33	6
Diseases of the joints (flat feet, 8; arthritis, 8; hammer toes, 3; ankylosis, 3; synovitis, 2)	24	2.46	16	8				20	4
Diseases of the bones (periostitis, 2; exostosis, 2; ostitis, 1; curvature of spine, 1)	6	.62	4	2				4	2
Muscular rheumatism	5	.51	2	3				5	
Contraction of ligaments and tendons	3	.31	1	2				3	
Myotonia	1	.10		1			1	1	

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TABLE NO. 29.—*Discharges for disability, year 1909, United States, continental (excluding Alaska)*—Continued.

Cause of discharge.	Number discharged.	Percentage of total discharges.	Discharges for disability.						
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.		January to August, inclusive.	September to December, inclusive.
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.		
Diseases of the respiratory system	29	2.98	8	21	.....	.....	2	24	5
Diseases of the lungs (chronic pleurisy, 8; asthma, 8; chronic bronchitis, 3; pulmonary emphysema, 3; pneumoconiosis, 1)	23	2.36	8	15	.....	.....	1	18	5
Goiter	3	.31	.....	3	.....	.....	.....	3	.....
Chronic nasal catarrh	2	.21	.....	2	.....	.....	1	2	.....
Deviation of septum, and hypertrophy of turbinate bone	1	.10	.....	1	.....	.....	.....	1	.....
Diseases of the skin and cellular tissue (corns, 5; chronic ulcer, 1; chronic acne, 1; chronic psoriasis, 1; hyperidrosis, 1)	9	.92	1	8	.....	.....	1	8	1
Ill-defined diseases (painful adhesions following herniotomy wound incurred prior to enlistment)	1	.10	.....	1	.....	.....	.....	1	.....
Total	974	100.00	365	410	199	9	105	795	179
EXTERNAL CAUSES.									
Fractures	26	24.30	21	.....	5	.....	.....	21	5
Secondary results of injuries	23	21.50	.....	23	.....	.....	3	22	1
Gunshot wounds	16	14.95	13	.....	3	.....	.....	13	3
Incised wounds	9	8.41	6	.....	3	1	.....	6	3
Crushing	8	7.48	8	.....	.....	1	.....	7	1
Sprains	8	7.48	8	.....	.....	.....	.....	7	1
Lacerated wounds	5	4.67	3	.....	2	.....	.....	5	.....
Burns	3	2.80	1	.....	2	.....	.....	2	1
Dislocations	2	1.87	1	.....	1	.....	.....	1	1
Frostbite	2	1.87	2	.....	.....	.....	.....	1	1
Muscular strain	1	.93	1	.....	.....	.....	.....	1	.....
Punctured wounds	1	.93	1	.....	.....	1	.....	1	.....
Burn from lye	1	.93	1	.....	.....	.....	.....	1	.....
Sunstroke	1	.93	1	.....	.....	.....	.....	.....	1
Electric shock	1	.93	1	.....	.....	.....	.....	.....	1
Total	107	100.00	68	23	16	3	3	88	19
Total, disease	974	90.10	365	410	199	9	105	790	184
Total, external causes	107	9.90	68	23	16	3	3	88	19
Grand total	1,081	100.00	433	433	215	12	108	878	203

SANITATION.

Attention was called in my last report to the increased difficulty of obtaining pure sources of water supply as the military reservations become more and more hemmed in by the growth of the civil population, to the danger to the latter caused by the discharge of untreated sewage from military posts into neighboring streams, and to the importance of proceeding at once to establish suitable plants for the purification of water and sewage. There has been during the year notable progress in this direction. A most important step in the satisfactory solution of these problems has been the appointment of a board, consisting of an assistant to the Quartermaster-General and two officers from this office, to make a study of each project and formu-

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late a general plan for its solution as an initial step. In this way the two departments especially charged with responsibilities in sanitary matters are enabled to work in unison, instead of being without concert and mutual understanding, as has often happened in the past.

This board, which was organized by paragraph 8, Special Order No. 238, October 13, 1909, first took up the study of the water supply and sewage-disposal plant at Fort Leavenworth, which has been a matter of complaint and correspondence for more than ten years. The water supply of this post is furnished by the city of Leavenworth and Fort Leavenworth Water Company, and is drawn from the Missouri River about 1,200 yards below the outfall of the post sewer. This arrangement properly caused much criticism from medical officers and complaint and alarm among the garrison. In 1902 a board of officers considered the matter and recommended the filtration of the water supply and a system of purification of the sewage. Both were subsequently installed, and it appears that the filter in connection with a good system of sedimentation has worked well and furnished a good water supply. The board organized by Special Order No. 238 in its visit of inspection in November found, however, that the sewage-purification plant, consisting of a septic tank and contact beds, was not well planned and has suffered from almost total neglect extending over a number of years. In consequence it only partially accomplished its purpose. The board recommended as a temporary measure certain alterations in this plant which, while not expensive, would correct the faults found to exist. As this plant is now being surrounded by the post and can not provide for its extension, the board recommended the final removal of the plant to a point nearer Leavenworth and the bringing upstream of the intake of the water company so that it would be above the sewer outfall. These recommendations have received the approval of the Secretary of War. The water company later made a counter proposal, showing that practical difficulties existed in moving the intake upstream and suggesting that it remain as at present and that the sewer be brought downstream and the outfall located at a point below the water-supply intake. This change was in principle approved by the board, and it is now being investigated by the Quartermaster's Department with reference to the engineering and legal questions involved.

The question of pollution of the water supply of Fort Sheridan, Ill., involving the larger question of the pollution of Lake Michigan, which was discussed in my last report, was also studied by the board, which visited Chicago and looked into the general question as well as the local condition at Fort Sheridan. They recommended the installation of a system of rapid gravity filters and also of a sewage-purification plant which should accomplish the following results:

1. The deposition in basins (hydrolitic tanks) of the coarse matters suspended in the sewage and which as a rule have a specific gravity greater than that of water.

2. The accumulation of the sludge on the bottom of the basins under conditions facilitating bacterial activity so as to liquefy and gasify, so far as possible, the solid organic matters in the sludge.

3. The disposal of the residual sludge from the hydrolitic tanks upon land in such manner that its water is quickly reduced by evaporation and filtration, and the resulting fairly dry humus and mineral matter is inodorous and inoffensive.

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4. The application of the partially clarified sewage coming from the hydrolitic tanks to "sprinkling filters," in the form of spray, under such conditions that the remaining putrefying organic matter in the sewage is so acted upon that the effluent from the sprinkling filters will not be putrescible, and so that the bacteria in the sewage will be largely eliminated.

5. The deposition in small settling basins of the coarser suspended particles contained in the effluent of the sprinkling filters and coming for the most part as films detached from the broken stone in the sprinkling filters.

It is considered by the board that for the purpose had in view at Fort Sheridan, Ill., filtration of the effluent will not be necessary. If at any time there should be evidence that this effluent constituted a danger of infection of the water supply, or if the concerted agreement of neighboring municipalities demanded it, sterilization could be obtained more easily and cheaply by the installation of a dosing chamber for the use of hypochlorite of lime in connection with the small settling basins referred to in paragraph 5 above than by filtration of the effluent.

The board has under investigation the application of ozone produced by an electric current for the purification of water, especially with a view to its installation at Fort Niagara, N. Y., where there is an unlimited supply of clear but polluted water, and electric current can be obtained at a low rate. The plants in operation in this country are understood not to be in all respects satisfactory, but a small experimental apparatus is being installed at the Army Medical Museum which will materially assist in the study of the question.

FORT GREBLE, R. I.

The regular water supply of the post from the Saunderstown springs having proved deficient, additional water had to be purchased which proved to be of suspicious quality, and recommendation was made by the surgeon that it be boiled. The commanding officer recommended the construction of an additional storage reservoir to contain 1,000,000 gallons. No money was available for this purpose during the fiscal year and the Quartermaster-General stated that an estimate had been submitted in connection with the 1911 estimate for it.

FORT HOWARD, MD.

The water is pumped from a driven well 314 feet deep and is of exceptional purity, but contains much iron which requires aeration and filtration for its removal. It having been reported that the filter was clogged and the pipes being filled up with precipitated iron, the department commander recommended that the matter be referred to the board of officers appointed by Special Order 238. 1909, for recommendation. The board found that the system of pumping with air furnished the necessary aeration to precipitate the iron, but that further sedimentation was needed for its precipitation than was at present furnished. It was recommended, therefore, that a sedimentation basin of 60,000 gallons adjoining the present basin be constructed and that the filter be cleaned out.

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JACKSON BARRACKS, LA.

The surgeon recommended that the waterworks and sewer system of the post be connected with the recently installed water and sewer system of the city of New Orleans. At present, in addition to the cisterns, water is drawn from the river about 1,000 yards below the discharge of the main sewer of the city. This water, although filtered, is not considered safe.

FORT McKINLEY, ME.

The water is from wells and has usually been insufficient in summer. To increase the supply three new wells have been sunk, of which various analyses have been made. The water is reported as very hard and the deepest well (No. 3) gives a water highly charged with iron which will require sedimentation before use. The recommendation of the surgeon that two sedimentation tanks of 30,000 gallons capacity each be constructed was approved by this office.

FORT MEADE, S. DAK.

A new and excellent supply of water has been provided by damming Dead Mans Creek. The watershed of this stream is owned by the Government with the exception of a small area, and not subject to pollution, and the commanding officer has recommended the purchase of the area not so owned, which being mountainous and denuded of timber is of small value.

FORT OGLETHORPE, GA.

The water supply is from deep wells driven through a limestone formation which abounds in fissures and underground channels. The well upon which the post mainly depends for supply has been cased to a considerable depth in the hope of shutting off seepage from the surface, but without success. Salt placed in a sink hole near the hospital soon caused an increase in the chlorides of the well water. Three wells have been bored during the spring of 1910 in the hope of furnishing a satisfactory water supply for the maneuver camp, but the analyses of all of these have shown the presence of the colon bacillus. A new series of examinations has recently been instituted in which great care has been directed in the obtaining of the samples. If these analyses are unsatisfactory it is evident that some form of purification will have to be adopted.

FORT OMAHA, NEBR.

The surgeon, Fort Omaha, reported the water supply furnished by the Omaha Water Company as unfit for drinking purposes, which opinion was sustained by the analysis made in the laboratory of this office. The surgeon calls attention to the fact that artesian water can probably be obtained as there is a well at Miller's Park which yields 150 gallons a minute of excellent water.

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FORT ONTARIO, N. Y.

The course of the water is from the Oswego River and is polluted; but the city is about to install a new water supply taken from the lake at a considerable distance from shore which it is hoped will furnish a pure water supply. The analysis of water from two old wells on the reservation showed it to be suspicious in character.

PLATTSBURG BARRACKS, N. Y

A system of mechanical filtration for the water supply of this post has been installed during the year which is reported as being satisfactory.

FORT PORTER, N. Y.

The water supply is from the Niagara River and furnished by the Buffalo City Water Company. It is polluted with sewage and at present Darnall filters are in use in each company and in the hospital. Some more systematic method of purifying the whole supply should be adopted.

FORT STEVENS, OREG.

The water supply is from cisterns which the surgeon reports as being inadequate.

FORT TERRY, N. Y.

The chief surgeon in his report quotes the post surgeon condemning the water supply. The water supply is furnished by distillation, but contains much chlorine, which exerts a most corrosive action upon the water pipes, distilling apparatus, etc. Attempts have been recently made to add to this water supply by sinking a number of shallow wells on the island, the water of the most of which has, on analysis, proved to be of a very satisfactory character.

WATERVLEIT ARSENAL, N. Y.

The water supply of the arsenal is drawn from the Hudson River which is badly contaminated by the sewage of the city of Troy and that of the arsenal itself. Another water supply has been sought by sinking wells on the reservation, but the results of numerous analyses made during the past six months have shown it to be of an unsatisfactory character, so that the question of a pure-water supply for this post is not yet solved.

FORT YELLOWSTONE, WYO.

The water supply is objectionable in summer because of the growth of algæ and decaying water plants. The supply passes through a marshy valley before reaching the post. A new water supply is being constructed, tapping the stream higher up so as to cut out these sources of contamination and render the supply less liable to contamination by wild animals.

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FORT DE RUSSY, HAWAII.

The surgeon reports that a considerable portion of the reservation is occupied by ponds, which are stagnant and are prolific breeders of mosquitoes. The commanding officer states that these ponds occupy about 30 out of the 70 acres of the reservation and that the filling in of these ponds would be very expensive, the estimated cost being about $65,000. Congress has already appropriated $50,000 for this purpose. Even if all the ponds are filled in the reservation is bordered with a series of fish ponds and duck ponds which would continue to breed mosquitoes.

KEY WEST BARRACKS, FLA.

The post at Key West was damaged by a hurricane on October 11, 1909, which partially unroofed the hospital and several of the barracks and did serious damage to the pump house which provided water for the flushing of the water-closets and for bathing. The electric lighting system was badly damaged and great havoc was made of the trees and shrubs on the reservation. Prompt steps were taken to repair all these damages.

There was much correspondence during the year about the interference with the main sewer, caused by the filling up of the bay about the sewer outlet during the progress of work carried on by the Florida East Coast Railroad Company. This company is obligated to keep the sewer in order, and it is understood that all damages were finally repaired by it.

SEWAGE PURIFICATION.

The construction of some system of sewage purification has been recommended at Forts McPherson, Logan, Sill, Assinniboine, and McKenzie, in addition to Forts Leavenworth and Sheridan, above mentioned. The conditions are not regarded as urgent at any of these posts, but as appropriations become available some form of biological sewage purification will doubtless be installed at each of them.

SANITARY REPORTS.

A review of the monthly sanitary reports shows many sanitary defects arising from time to time during the year and the value of these reports is constantly illustrated by the promptness with which action is taken to correct the insanitary conditions mentioned in them. Overcrowding was mentioned in a number of posts, the majority of these being garrisoned by the Coast Artillery Corps. At Forts Totten and Adams it is surprising to note that overhead or double-deck bunks, a sanitary abomination which was believed to be obsolete in the United States Army, had reappeared. The overcrowded condition of the barracks at Revere and Adams was noted in my preceding annual report. Overcrowding of guardhouses is probably the sanitary error most frequently noted. It would be very desirable that instructions should be issued that the minimum cubic-air space per capita for guardhouses should be 500 cubic feet and the number of individuals which each guardhouse could accommodate conspicuously posted on the building and general instructions given that this number should, under no circumstances, be exceeded.

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Specific instructions in special cases appear to do little good, as the overcrowding of guardhouses at Fort Des Moines and Fort Sill, noted in my last report and made the subject of official correspondence, have been allowed to be repeated.

At Fort Jay, N. Y., in addition to overcrowding, it was noted that many of the prisoners were kept in idleness and had insufficient exercise. Measures were promptly taken to correct these defects. At Fort Porter, in addition to insufficient capacity and defective ventilation of the barracks, it was noted that the foulness of the air was much increased by the use of gas for lighting, and the substitution of electricity as an illuminant was recommended. This recommendation, however, appears not to have been carried out. If, in the cases of this and similar posts, ventilating shafts were placed over the gas burners, instead of being sources of contamination for the atmosphere, they might be made efficient agents for assisting ventilation.

At Fort Worden it was noted that the newly-constructed barracks failed to provide the minimum allowance of cubic feet of air space per capita—720 cubic feet—and in fact after deducting the space occupied by lockers, bunks, etc., the allowance was only 640 cubic feet. The number of men in these barracks was 708 and it was noted by the post commander that the bunks were only a foot apart. While it is realized that the increased cost of construction makes it difficult to bring the cost of barracks within the appropriations allowed, it is thought that economy in fresh air is a grave error which should not be permitted. The importance of abundant fresh air and proper ventilation is discussed under the head of "Tuberculosis."

CAMPS OF INSTRUCTION FOR MILITIA MEDICAL OFFICERS DURING THE SUMMER OF 1909.

The following memorandum from the Surgeon-General's Office of April 23, 1909, received favorable action by the War Department:

It must be recognized that the present methods of instructing militia medical officers leave much to be desired. Maneuvers have been utilized for this purpose, but in the brief period devoted to them, and the many duties which devolve on the militia medical officer at that time, not much can be done in the way of instructing them. In addition to the maneuvers, officers of the Medical Corps have inspected the medical department of the National Guard of New York during the present year and some lectures have been delivered to the medical officers of the National Guard of Massachusetts this year and preceding years. What is needed further, is some scheme which, without seriously interfering with the time of militia medical officers that naturally is much occupied, as most of these gentlemen are in the active practice of their profession, will show them clearly what duties will be expected of them in war.

It is believed that this could best be accomplished by the establishment of a camp by the Medical Department. It is thought that if this camp was open for a period of one or two months during the summer that from time to time a great many national guard medical officers would attend it. If the scheme is approved it is proposed to establish at this camp a complete field hospital and ambulance company which would be used to illustrate the work of these organizations. In addition a comprehensive course of lectures would be given from time to time and free discussion would be permitted to all national guard officers participating. It is thought that if some spot of historical interest in connection with the civil war, such as Gettysburg, were fixed upon as the site of the camp, it would operate to attract the greatest number of national guard medical officers. There would be another advantage in this plan as the field could be used to illustrate what was done by the medical service in the civil war and what would have to be done under modern conditions in warfare. The expense involved in the scheme proposed would not be great. One of the companies of instruction (Hospital Corps), could be utilized for the personnel of the field hospital and ambulance company. Lecturers could come from the Army Medical School. For the company and field hospital the regulation amount of transportation would have to be provided.

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There were three camps organized; one at Antietam, Md., one at Sparta, Wis., and one at the Presidio of San Francisco, Cal.

The camp at Antietam, Md., was from July 15 to August 12, inclusive. There were two periods of instruction of practically two weeks each and each day the instruction, which lasted for about seven hours, was devoted to lectures and demonstrations supplemented by some extra time in the preparation of reports and returns. The camp was pitched upon a field of 14 acres close to the junction of the Bloody Lane and Hagerstown Turnpike. There were present at this camp, 11 medical officers of the regular corps, 112 enlisted men, mostly of Company C, Hospital Corps, and some civilian teamsters. Field Hospital No. 6 with its ambulance company section was also used. Maj. Frederick Reynolds, Medical Corps, was in command of the camp and associated with him were 3 captains and 4 lieutenants. Among this number was Capt. Robert N. Patterson, who, in addition to his duties in connection with the camp, assisted in the instruction for the militia medical officers, as also did Major Reynolds.

The instructors and the schedule were as follows:

Hospital corps drill	Capt. R. N. Patterson	8.15 a. m.
Military hygiene	Lieut. Col. W. D. McCaw	9.00 a. m.
The military service in campaign	Maj. P. F. Straub	10.00 a. m.
Administration	Capt. Charles R. Reynolds	11.00 a. m
Organization, equipment, and duties of the Medical Department in the field.	Maj. Frederick Reynolds	4.00 p. m.

In regard to the work during the afternoon and to some other features connected with the instruction, Major Reynolds has the following to say:

Afternoons were largely devoted to practical field work under Major Straub as instructor. The work began with practice in map reading and was followed by "staff rides," the locating of the aid stations and the routes of evacuation for wounded. The ambulance company was taken out and used in one exercise.

A problem was given on the last day in the solution of which the entire day was devoted, in which the field hospital and ambulance company were used.

The various aid stations of the front were located, the equipment unpacked, the organization of each station completed, and the lines of evacuation established. A discussion of the problem followed.

Upon arrival in camp, student officers below the grade of major were assigned to duty with either the ambulance company or the field hospital, and reported to the commanding officers of these units for instruction. They were thereby enabled to become familiar with the organizations, interior economy, and equipment. These assignments were alternated at the end of the week.

Hospital corps drill was taught by attendance at company inspections and at drills in which all exercises of the drill regulations were covered. Also, a detachment of student officers was drilled by Captain Patterson. At these drills, attendance upon which was voluntary, considerable enthusiasm was shown, the detachment comprising a majority of the student officers. One lecture upon the principles of first aid was given, also two demonstrations of the methods of instructing the Hospital Corps in this subject.

A medical officer of the day was detailed by roster from the class. His duties were to attend sick call and emergencies during his tour, to be present at formations and receive reports of roll calls, to inspect the messes, and to make a complete sanitary inspection of the camp in accordance with a prescribed form.

During the first period of instruction there were 23 medical officers of the militia present, and during the last, 45.

The sanitary conditions were excellent, there being only 5 cases taken upon sick report in July and 4 in August, these being as follows: Diarrhea, 4; pleurisy, acute, 1; lacerated wound, 1; abscess, 1; appendicitis, 1; pulmonary tuberculosis, 1.

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McCall incinerators were used and all excreta disposed of by them. Night urine tubs were used in company streets. Manure was taken away and deposited on farm land. Most of the garbage was removed by a civilian, the remainder was burned.

At the beginning of camp a rock crematory was built, and in order to demonstrate its efficiency all manure and garbage were destroyed in it. During the latter part of the period a kitchen "spider incinerator" or crematory was built, similar to those at encampments of the Pennsylvania Militia. While it was not used to a sufficient extent to demonstrate its capability of destroying all wastes of a company kitchen, it seemed to be the opinion of medical officers who saw it in operation that it could readily accomplish this work. It required no more care than does a company range, and besides destroying garbage it evaporates a considerable quantity of liquids, probably all that a company kitchen should have.

Of the course of instruction, Lieut. Col. W. D. McCaw has the following to say:

The course of instruction given to the visiting officers, although of necessity rather experimental in its nature, turned out to be very well adapted to their needs, and there was but little repetition of subject-matter by the different instructors. I, as chief instructor, opened up the session each morning by a lecture on the hygiene of field service, and was followed by Major Straub, who lectured upon the use of the Medical Department in field service. Capt. C. R. Reynolds then lectured on the most important regulations applicable to field service and demonstrated the essential papers necessary, particularly those pertaining to the drawing and use of rations in the field, and the keeping of records of sick and wounded. Major Reynolds lectured at different times on the internal administration of field hospitals and ambulance companies. On Saturdays complete inspections of the camp and the sanitary appliances were held. In the afternoon maneuvers were carried out, in which as many of the militia officers as possible were mounted, the rest traveling in ambulances. This course, conducted by Major Straub, was exceedingly original and instructive in its nature. It consisted at first of several preliminary expeditions for the purpose of teaching map reading. The class was required to follow their course on the map, taking notes of all roads and contours, and estimating distances and direction. In a few days they had become expert enough to locate their positions on the battle field by making sketch maps. Later on expeditions were made with the ambulance company, and once for each class the entire field hospital allowed by present regulations was packed on the regulation number of wagons and a battle problem was undertaken. A line of battle was assumed advancing on certain ground, and certain specified losses were assumed for the different organizations. The militia officers were given these conditions, and assigned to certain positions with the assumed army, were required to go out and locate their medical organizations according to their own judgment, reporting their whereabouts on maps of their own making. The defense of their judgment of locality was a part of the discussion which was held in camp the next day.

Of the entire success of the camp from the standpoint of the militia officers there can be no possible doubt. Their enthusiasm was so great at all times as to be almost embarrassing to the regular officers.

All the medical officers, both regular and militia, were apparently very much benefited by the work of the camp.

The objectionable features were, first, the limited number of mounts, there being only 45, so that in the last class all the militia officers could not be mounted; second, the limited number of hospital corps men, it being found that several noncommissioned officers and about 20 privates were needed for camp administration, police, and sanitary work, and could not be drawn from the field hospital and ambulance company detachment, as these units would be left undermanned and incapable of performing their duties.

Camp Robinson, near Sparta, Wis., was under the command of Maj. Powell C. Fauntleroy. The instructors were—

1. Practical instruction in field work with demonstrations: Maj. Powell C. Fauntleroy.
2. Military hygiene: Maj. William E. Purviance.
3. Army regulations: Maj. Thomas S. Bratton.

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The following medical officers were associated in the administration of the camp and in the work of instruction: Capts. Fred A. Dale, Clement C. Whitcomb, Edward M. Talbott; Lieuts. Harold W. Jones, Charles E. Doerr, Thomas J. Leary, Rozier C. Bayly.

Company A, Hospital Corps, and Field Hospital No. 4, with its ambulance company section, were also assembled here.

The first period of instruction was from July 15 to July 28 and was attended by 40 medical officers of the militia, while 30 attended the second, from July 29 to August 12.

At the Presidio of San Francisco, Cal., the camp was under the command of Maj. Albert E. Truby, Medical Corps. The instructors were—

Field work: Maj. Albert E. Truby.

Regulations: Maj. Joseph H. Ford.

Military hygiene: Maj. Arthur W. Morse.

The following medical officers were associated in the administration of the camp and in the work of instruction: Capts. Herbert G. Shaw, James L. Bevans, Robert L. Carswell, William A. Wickline; Lieuts. Daniel P. Card, Robert W. Kerr, William S. Shields.

Company B, Hospital Corps, with 116 enlisted men and a field hospital with its ambulance company section, were assembled here.

The first period of instruction was from July 15 to July 29, and as no medical officers of the militia reported, the company was employed with various drills and maneuver problems. The second period, from July 29 to August 12, was attended by 12 medical officers of the militia.

In both of these camps excellent courses of instruction were given, the outlines being in each case left to the individual instructors. In each case every effort was made to make the work as interesting and as practicable as possible. The general opinion expressed by all of the medical officers who attended, both of the regular corps and of the militia, was that the camps had been very successful and that all who attended had been benefited.

At the various maneuver camps during the summer and fall of 1910, similar courses of instruction for the medical officers of the militia will be given, especial time and attention being devoted to "Field work and problems," as was the case last year.

ALASKA.

The mean strength of the troops serving in Alaska was about the same as last year, consisting of infantry, Signal Corps, and Hospital Corps, in all 1,064 men, all white.

The noneffective rate and average number of days lost were greater than for the preceding year, although the admission rate was less. There were only 2 deaths, both from drowning. Six men were invalided home, of whom 5 were discharged for disability, 4 on account of injuries and 1 for chronic alcoholism.

The principal causes of admission were venereal diseases, alcoholism, tonsillitis, and rheumatism. The infectious fevers were noticeably absent, no case being reported of typhoid fever, smallpox, measles, scarlet fever, or diphtheria.

Alaska still maintains its position as by far the healthiest region where the army is stationed.

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TABLE No. 30.—*Influence of station, year 1909, Alaska.*

	Mean strength.	Ratios per 1,000 of mean strength.												Average number of days lost.			
		Admissions to sick report.		Discharges on surgeon's certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.	
										From all causes.		Excluding injuries, venereal diseases, alcoholism, and vaccinia.					
		From all causes.	Exclusive of injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Exclusive of injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Exclusive of injuries, venereal diseases, alcoholism, and vaccinia.	From all causes.	Exclusive of injuries, venereal diseases, alcoholism, and vaccinia.	Total.	In hospital.	Total.	In hospital.	For each soldier.	For each case.	For each soldier.	For each case.
Fort Gibbon	255	250.98	160.78	3.92	.....	.....	.....	3.92	.....	13.96	11.73	7.39	6.53	5.09	20.30	2.70	16.78
Fort St. Michael	146	273.97	136.99	.....	.....	.....	.....	.....	.....	14.52	13.81	5.85	5.57	5.30	19.35	2.14	15.60
Fort Liscum	181	386.74	226.52	.....	.....	5.52	.....	5.52	.....	24.29	22.01	14.00	13.74	8.87	22.98	5.11	22.56
Fort Davis	148	459.46	243.24	.....	.....	6.76	.....	6.76	.....	9.00	6.52	3.31	1.70	3.28	7.15	1.21	4.97
Fort Egbert	145	510.34	241.38	20.69	.....	.....	.....	20.69	.....	21.24	16.29	7.69	5.71	7.75	15.19	2.81	11.63
Fort William H. Seward	189	523.81	259.26	5.29	.....	.....	.....	5.29	.....	14.66	13.32	6.35	5.73	5.35	10.21	2.32	8.94
Total	1,064	390.04	208.65	4.36	.....	1.75	.....	6.11	.....	16.22	13.94	7.59	6.70	5.92	15.18	2.77	13.28

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TABLE No. 31.—*Influence of season, year 1909, Alaska.*

Month.	Mean strength.	Ratios per 1,000 of mean strength.								Prevailing diseases (exclusive of venereal diseases, etc.).
		All causes.					Exclusive of venereal diseases, alcoholism, vaccinia, and injuries.			
		Admissions.		Deaths.	Noneffective.					
		Total.	Hospital.		Total.	Hospital.	Admissions.	Deaths.	Noneffective.	
Jan.....	1,070	28.04	22.43	.....	13.84	12.09	13.08	....	8.05	Tonsillitis, 5.
Feb.....	1,064	26.32	21.62	.....	15.41	14.20	15.98	....	7.01	Muscular rheumatism, 3.
Mar.....	1,064	28.20	25.38	.....	19.13	18.31	19.74	....	11.73	Do.
Apr.....	1,065	24.41	18.78	.....	16.93	14.27	12.21	....	9.36	Do.
May.....	1,062	21.66	18.83	.....	13.82	13.03	16.95	....	6.80	Articular rheumatism, acute and chronic, 3; muscular rheumatism, 3.
June....	1,057	20.81	10.41	0.89	10.34	7.25	8.51	....	4.01	
July.....	1,072	17.72	11.19	.....	9.09	7.55	11.19	....	3.97	
Aug.....	1,057	35.95	27.44	.87	11.81	10.22	15.14	....	5.68	
Sept....	1,078	38.03	27.83	.....	16.30	14.01	19.48	....	6.99	Furuncles, 5; tonsillitis, 3; constipation, 3.
Oct.....	1,068	54.30	37.45	.....	21.60	17.49	26.22	....	7.22	Muscular rheumatism, 4; diarrhea and enteritis, 3; coryza, 3.
Nov.....	1,059	35.88	31.16	.....	19.29	16.40	17.00	....	7.90	Tonsillitis, 3.
Dec.....	1,049	59.10	42.90	.....	27.12	22.54	33.36	....	12.36	Tonsillitis, 6; trachoma, 4; acute bronchitis, 3.
Total.	1,064	390.04	295.11	1.75	16.22	13.94	208.65	....	7.59	Tonsillitis and other diseases of the pharynx, 33; muscular rheumatism, 25; articular rheumatism, acute and chronic, 14; constipation, 12.

CUBA.

The army of Cuban occupation was withdrawn from the island early in the year, the last troops leaving on the 1st of April. Its strength was about 4,000 officers and men. The health of the troops during this period was excellent and their sanitary history contains little worthy of note. Their admission, death, and noneffective rates were all markedly better than those of the troops having station in the United States. After venereal diseases, malarial fevers and intestinal parasites were the principal causes of admission to sick report. No case of yellow fever occurred, as that disease had been extinguished on the island. The causes of morbidity are given in detail in Table No. 64. The invalided home is shown in the following table:

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TABLE No. 32.—*Enlisted men invalided home from Cuba, year 1909.*

Cause.	Number of cases.	Percentage of total cases.	Duty.	Discharged on surgeon's certificate of disability.	Otherwise disposed of.
Venereal diseases	10	32.26	8	2	.....
Fractures, exclusive of gunshot	3	9.68	3	.....	.....
Tuberculosis	2	6.45	1	1	.....
Other chronic poisonings	2	6.45	.....	2	.....
Neuralgia	2	6.45	1	.....	1
Other diseases of the intestines	2	6.45	2	.....	.....
Congenital malformations	2	6.45	.....	2	.....
Chronic alcoholism	1	3.23	.....	1	.....
Chronic lead poisoning	1	3.23	.....	1	.....
Organic disease of the heart	1	3.23	.....	1	.....
Pleurisy	1	3.23	1	.....	.....
Abscess of the liver	1	3.23	1	.....	.....
Appendicitis	1	3.23	1	.....	.....
Chronic nephritis	1	3.23	.....	1	.....
Undetermined fever	1	3.23	1	.....	.....
Total cases	31	100.00	19	11	1
Percentage of total cases	.....	.....	61.29	35.48	3.23

PORTO RICO.

There are in Porto Rico two military posts—San Juan at the capitol, and Henry Barracks in the interior—both garrisoned by the Porto Rican Regiment. The mean enlisted strength for 1909 was 567. The enlisted strength of this regiment is recruited from native Porto Ricans, the officers being in part Americans and in part Porto Ricans.

The movement of sick is shown in the following table, which gives also the rates for the preceding year for the purpose of comparison:

TABLE No. 33.—*Movement of sick, Porto Rican Regiment, year 1909.*

	Years.	From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.	
		Total.	In hospital.	Total.	In hospital.
Ratio per 1,000 of mean strength:					
Admissions to sick report	1909	1,188.71	1,135.80	832.45	.....
	1908	1,242.91	1,102.84	918.44	.....
Discharges on surgeon's certificate of disability	1909	10.58	.....	5.29	.....
	1908	7.09	.....	7.09	.....
Deaths	1909	12.35	.....	7.05	.....
	1908	7.09	.....	5.32	.....
Total losses	1909	22.93	.....	12.34	.....
	1908	14.18	.....	12.41	.....
Noneffective	1909	43.03	.....	23.80	23.00
	1908	37.02	34.40	22.78	20.73
Average number of days lost:					
For each soldier	1909	15.71	15.17	8.69	8.39
	1908	13.55	12.59	8.34	7.59
For each case	1909	13.21	13.35	10.43	.....
	1908	10.90	11.42	9.08	.....

It will be seen that the admission rate was somewhat smaller than for the preceding year, but the noneffective rate is somewhat greater. The discharge and death rates were also greater than for last year, the former being less and the latter greater than the rates for the whole army.

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Table No. 34 gives the rates for the prevailing diseases, from which it will be seen that there is a slight increase in venereal diseases, which have a considerably higher rate than for the army. The rate for malaria shows a marked reduction. The increase in filarial infections is notable, thirteen cases of this serious infection having been reported.

TABLE No. 34.—*Diseases of Porto Rican troops—Admission rates per 1,000 of mean strength.*

	Year 1909.	Year 1908.
Venereal diseases	250.44	242.91
Gonorrhea and results	126.98	143.62
Chancroid and results	89.95	60.28
Syphilis and results	33.51	39.01
Malaria	179.89	219.86
Furuncle	109.35	78.01
Influenza	82.89	83.33
Dyspepsia	49.38	62.06
Bronchitis, acute and chronic	29.98	19.50
Filariasis	22.93	3.55
Measles	17.64	19.50
Dysentry	14.11	15.96
Ankylostomiasis	8.82	14.18
Rheumatism, acute, articular	8.82	5.32
Typhoid fever	5.29	5.32
Smallpox	3.53	7.09
Tuberculosis, all	3.53	1.77
Insanity	3.53	1.77

The following table shows the seasonal prevalence of the prevailing diseases for each month:

TABLE No. 35.—*Influence of season, year 1909, Porto Rico.*

Month.	Mean strength.	Ratios per 1,000 of mean strength.								Prevailing diseases (exclusive of venereal diseases, etc.).
		All causes.					Exclusive of venereal diseases, alcoholism vaccinia, and injuries.			
		Admissions.		Deaths.	Noneffective.					
		Total.	Hospital.		Total.	Hospital.	Admissions.	Deaths.	Noneffective.	
Jan	568	89.79	84.51	1.76	29.93	29.02	68.66	.....	15.90	Malarial fever, 21; furuncles, 5.
Feb	567	56.44	49.38	.....	27.49	26.21	40.56	.....	14.72	Malarial fever, 6.
Mar	566	132.51	128.98	.....	39.09	37.49	95.41	.....	28.16	Malarial fever, 8; acute bronchitis, 8; furuncles, 5.
Apr	564	67.38	56.74	1.77	40.01	38.77	42.55	1.77	29.55	Malarial fever, 7.
May	570	91.23	84.21	.....	38.21	36.74	73.68	.....	24.89	Malarial fever, 9; furuncles, 6.
June	551	87.11	87.11	1.81	44.22	41.08	59.89	1.81	29.40	Malarial fever, 9.
July	559	119.86	118.07	.....	41.70	39.80	84.08	.....	30.64	Malarial fever, 11; furuncles, 7.
Aug	571	99.82	99.82	1.75	45.59	45.59	47.29	.....	19.87	Furuncles, 7.
Sept	571	98.07	96.32	.....	50.08	50.03	75.31	.....	24.11	Furuncles, 11; malarial fever, 7; dyspepsia, 6.
Oct	572	124.13	115.38	.....	52.28	49.99	73.43	.....	23.93	Malarial fever, 8; furuncles, 8.
Nov	574	106.27	104.53	1.74	55.28	54.65	80.14	1.74	22.30	Influenza, 14; malarial fever, 13.
Dec	574	114.98	109.76	3.48	41.81	38.98	90.59	1.74	16.71	Influenza, 23.
Total	567	1,188.71	1,135.80	12.35	43.03	41.55	832.45	7.05	23.80	Malarial fever, 102; furuncles, 62; dyspepsia, 28; acute bronchitis, 17; diarrhea and enteritis, 17; filiariasis, 13.

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The highest admission rate was in March and the lowest in February, the highest noneffective rate being in November and the lowest in February. There were 7 deaths, due to the following causes: Acute myelitis, 1; typhoid fever, 1; appendicitis, 1; abscess of left lung, 1; drowning, 1; fracture of the skull, 1; and gunshot wound, 1.

RECRUITING.

Seventy per cent of the recruits examined by medical officers were accepted, as compared with 80 per cent for 1908. Forty-five per cent of the accepted candidates were between the ages of 21 and 25, inclusive, and only 4 candidates were under 21. Sixty-one per cent were 66 inches or under in height, and only 4 reached the height of 5 feet 11 inches or over. Seventy-six per cent of recruits were under the average height of the American recruits, viz, 67.56 inches. Forty-eight per cent weighed less than 130 pounds, and only 9 per cent weighed 150 pounds or over. Sixty-three per cent had a chest measurement of 33 inches or under, and 14 per cent had chest measurements of 35 inches or over, as compared with 17 per cent for last year.

REJECTIONS.

TABLE No. 36.—*Causes of rejection of applicants for enlistment, Porto Rican Regiment, year 1909.*

	Total.	
	Number.	Ratio per 1,000 rejected for physical causes.
Under weight	16	160.00
Diseases of the eye, including defects of vision	12	120.00
Diseases of the genito-urinary system, nonvenereal	12	120.00
Chest development insufficient	9	90.00
Heart disease	8	80.00
Venereal diseases	7	70.00
Hernia	7	70.00
Varicose veins, except as shown in detail	5	50.00
Hemorrhoids	4	40.00
Defective teeth	4	40.00
Diseases of the skin	4	40.00
Curvature of the spine	4	40.00
General diseases, except as shown in detail	3	30.00
Diseases of the respiratory system	3	30.00
Diseases of the nervous system, except as shown in detail	1	10.00
Under height	1	10.00
Total	100	1,000.00

Sixteen per cent of the rejections were caused by deficiency in height, 12 per cent for diseases of the eye, 12 per cent for diseases of the genito-urinary system, nonvenereal; 9 per cent for insufficient chest development, 8 per cent for heart diseases, and 7 per cent for venereal diseases. For 1908 venereal diseases were a larger factor, causing 10 per cent of the rejections.

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HAWAII.

Only one island of the Hawaiian group is garrisoned, namely, Oahu, on which is situated the city of Honolulu. As the garrison is being largely increased, the station has become one of considerable importance. The mean strength of the garrison during the year was 1,014. In spite of its salubrious and temperate climate and the absence of the more serious epidemic diseases, its admission and noneffective rates were higher than for the United States. This is owing to high rates for venereal diseases, the intestinal diseases, and furunculosis. There were 10 cases of typhoid fever during the year. It is surprising to find the admission rate for bronchitis and tonsillitis higher in this delightful climate than for Alaska. Twenty-nine men were invalided home, of whom 8 were returned to duty, 10 were discharged for disability, 4 otherwise disposed of, and 7 remained under treatment at the end of the year. The total number of discharges for disability during the year was 15. There were 2 deaths, one from typhoid fever, the other from accidental fracture of the skull.

PHILIPPINE ISLANDS.

AMERICAN TROOPS.

The health of the American troops in the Philippines continues to improve year by year. As shown in Table No. 3, the admission rate for disease and the constantly noneffective rate were better for 1909 than for 1908, which was in turn better than for any preceding year. The death rate was, both for disease and external cause, lower than in 1908. Among the deaths from external causes, there were 20 deaths from wounds, as for the preceding year; for fractures, exclusive of gunshot, 3; and for drowning, 2. Of the deaths from wounds, there were 4 killed in action and 2 died of wounds received in action.

The mean strength of the American troops was 13,760, not including a force of native troops, the Philippine Scouts, with a mean strength of 5,534, for whom medical statistics will be given separately on page 104. The most important diseases showing a reduction are malarial fevers, diarrhea and enteritis, alcoholism, tuberculosis, Asiatic cholera (none for 1909, compared with 13 for 1908), and variola (none). On the other hand, there was an increased admission rate for typhoid fever, dysentery, dengue, and venereal disease. The diseases causing the highest noneffective rates were: Venereal diseases, 21.15; malarial fevers, 2.42; dysentery, 2.99; and dengue, 2.30. The principal causes of death were (absolute numbers) gunshot wounds 16, dysentery 14 (amœbic 3, bacillary 6, mixed infections and other dysentery 5), organic diseases of the heart 8, tuberculosis 6, wounds other than gunshot 4. It should be noted that deaths occurring in the United States from disease contracted in the Philippines are credited in this report to the station of the regiment or organization to which the soldier belonged. Thus of the 6 deaths from tuberculosis credited to the Philippines only 2 actually occurred there, the balance being among soldiers invalided home on account of that disease. No case of snake bite was reported. There were 2 deaths from drowning, as against 13 for 1908.

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PREVALENCE OF SPECIAL DISEASES.

TYPHOID FEVER.

The admission rate was 6.15, as compared with 2.76 for 1908, with 2 deaths, as against 5 for the preceding year. The rate was higher than for the army as a whole, that being 3.59. This large rate and the increase over the preceding year is to be accounted for by the two outbreaks, one of which occurred at Camp Eldridge, Laguna, P. I., lasting from July 3 to October 24, 1909. There were 10 cases with no deaths. The second and more extensive outbreak occurred in the Twenty-third Infantry at Ludlow Barracks, Parang, P. I., which began October 11, 1909, and continued until some time in the present year, 1910. From the beginning of this outbreak until March 15 there occurred 74 cases with 2 deaths. This epidemic was carefully investigated in October, 1909, by the post surgeon, Major Henry Page, assisted by Capt. James M. Phalen, president of the tropical board. The conclusion arrived at was that in all probability the epidemic was caused by the use of unsterilized water for bathing and the unauthorized use for drinking and washing the teeth. It was also proven that at least one table waiter had on several occasions used the unsterilized water from the taps in diluting the tea served to the men. The epidemic was largely confined to five companies and the fixtures for running water, which were unsterilized, were first placed in these companies. Distilled water was provided for drinking and washing the teeth and notices had been posted and orders issued warning the men against the use of tap water for these purposes. However, it was shown that many of them had disregarded all orders and warnings upon this subject.

This epidemic was further carefully investigated by Capt. H. G. Bloomburg, of the tropical board, assisted by the post surgeon, during the latter part of March, 1910. The conclusions arrived at were as follows:

(1) From the two investigations it seems safe to assume that the Nituan River water (piped throughout the post) was a badly infected water and doubtless at times contained typhoid organisms excreted by natives sick with the disease. The Moros, as a result of religious teaching, defecate directly into running water.

(2) Major Page's report states that many soldiers acknowledged having drunk the unboiled tap water, and one assistant cook admitted having frequently diluted the company iced tea with this water. We believe this water was the source of some of the cases of typhoid fever, particularly the scattered and early cases.

(3) The case maps of the post for the first part of the epidemic and for the recrudescence show the distribution of the cases to have been a little more general in the latter, but considering both outbreaks as a whole the cases were so notably grouped in the barracks of Companies D, E, I, K, L, and M that we believe the facts are consistent with the hypothesis of contact infection, especially of food during preparation and serving, having been an important factor in the spread of the epidemic. At this date, however, we are unable to positively exclude the possibility of a temporary infection of the water having caused the flare-ups.

(4) The theory which had been advanced that the grouping of the October cases in D, I, K, L, and M barracks was due to the piped Nituan water having been first introduced into those buildings (fall of 1909) is attractive, but we believe must remain open to doubt because of the subsequent course of the epidemic and the vague and contradictory statements obtained as to the dates and order of installing the water connections.

(5) The attempt to trace the infection to carriers was not successful.

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The Twenty-third Infantry was removed about March 15 of the present year and the post was then garrisoned by the Twenty-first Infantry. During a period of more than three months since the arrival of this regiment at the post only one case of typhoid fever has developed. This seems to demonstrate rather clearly that contact, as pointed out in Captain Bloomburg's report, must have played a very important part in the continuous epidemic of typhoid in the Twenty-third Infantry while at this post.

It is now the general opinion among the medical officers serving in the Philippines that typhoid fever is very prevalent among the native population.

TABLE No. 37.—*Typhoid fever, American troops, Philippine Islands, year 1909.*

Posts.	Mean strength.	Admissions.	Deaths.
Parang, Mindanao	780	53	1
Camp Eldridge, Luzon	186	10	.....
Malabang, Mindanao	388	4	.....
Fort Mills, Luzon	637	2	.....
Cuartel de Espana, Manila	565	2	.....
Fort William McKinley, Luzon	2,620	2	.....
Camp Jossman, Guimaras	484	1	.....
Camp Overton, Mindanao	359	1	.....
Camp Downes, Leyte	304	1	1
Camp Stotsenburg, Luzon	844	1	.....
Camp McGrath, Luzon	778	1	.....
Field, Mindanao	95	1	.....
Total	12,844	79	2

MALARIAL FEVERS.

The admission ratio for all fevers of this class was 112.35, as compared with 123.97 for 1908, 167.79 for 1907, 304.20 for 1906, and 261.55 for 1905. Malaria stands fourth among causes of admission for all troops, fifth for Americans, and first among Filipino troops. The rate for the army as a whole was 38.42. This continued improvement is to be ascribed to the steps taken to protect the men at night from the bites of anopheles mosquitoes and doubtless also to the measures taken to destroy the breeding places near the garrisons and to the screening of barracks and quarters wherever practicable.

UNDETERMINED FEVERS.

The admission rate for these fevers was 25.46, as compared with 25.31 for last year. The various diagnoses under this head are as follows:

Febricula	183
Fever, simple continued	103
Fever, type undetermined	13
Ephemeral fever	23
Thermic fever	5
Total	327

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CHART 8.—*Showing the relative admission, death, and noneffective ratios per thousand of mean strength for certain special diseases in the Philippine Islands (American troops).*

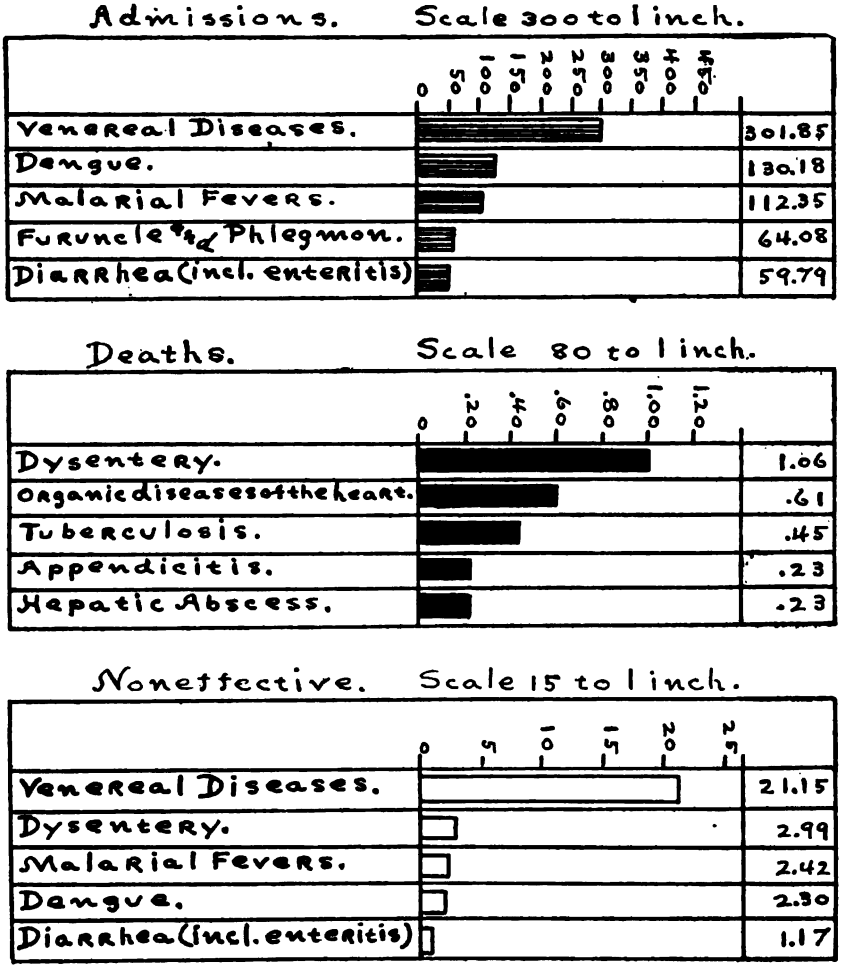

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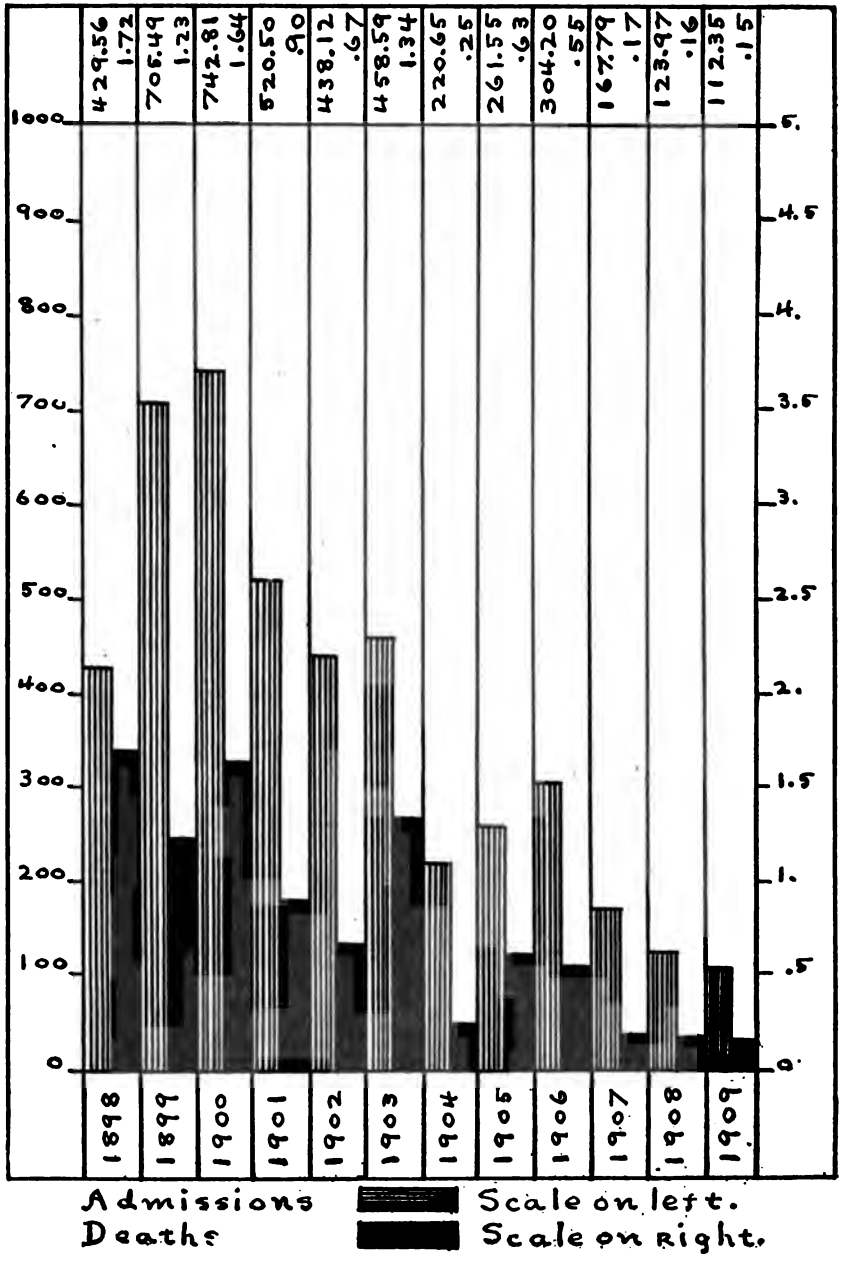
CHART T.—*Showing the relative admission and death rates per thousand of mean strength for malarial diseases in the Philippine Islands (American troops), by years, 1898–1909.*



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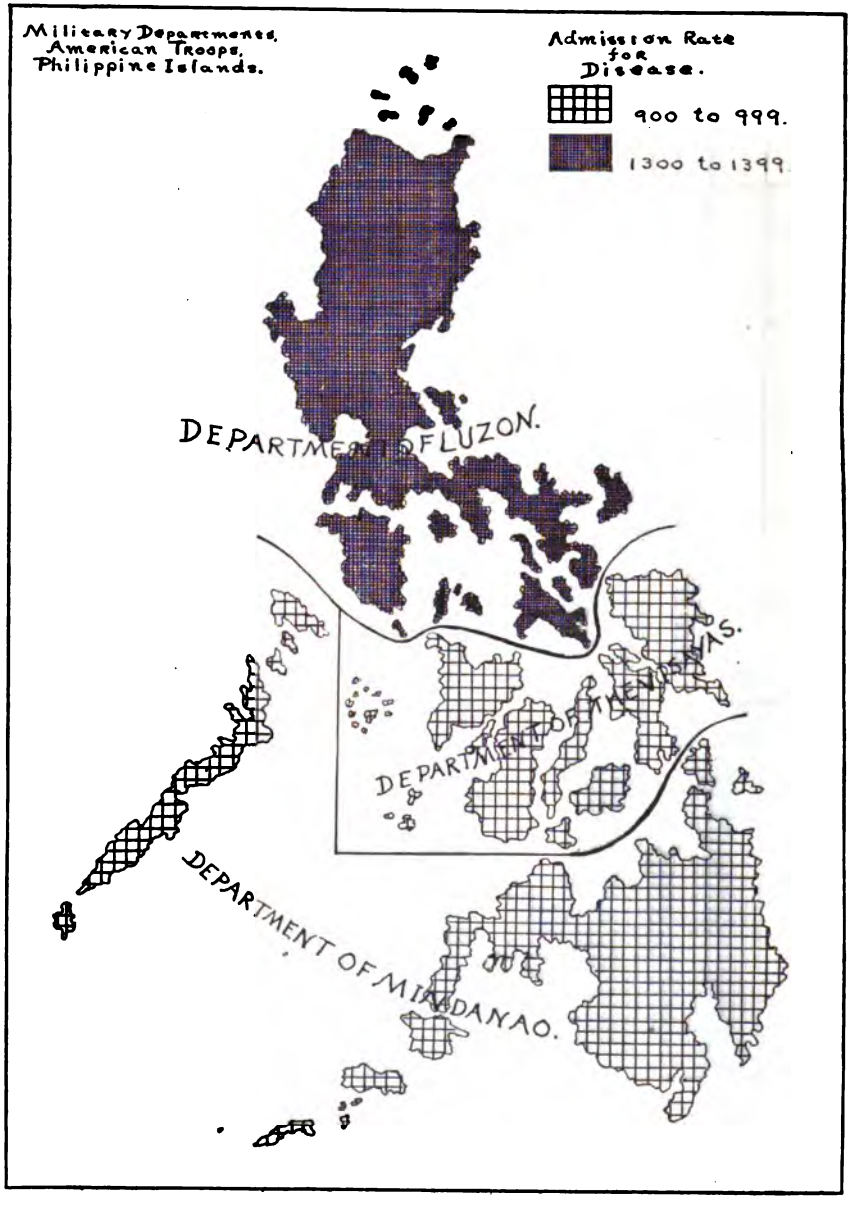

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ASIATIC CHOLERA.

This disease has been especially prevalent throughout the Archipelago during the past year, and at the present time is still prevalent. The records of the bureau of health show 8,055 cases in the provinces during the year, with 5,524 deaths. This probably does not represent the majority of the cases actually occurring, as the natives conceal cases whenever possible. From January 1, 1909, to December 25, 1909, there were 263 cases confirmed in the city of Manila, with 211 deaths. It is, therefore, gratifying to be able to report that there was no case of cholera among the American troops and but 9 cases, with 7 deaths, among the native troops. In numerous towns adjacent to military posts this disease was epidemic at some period during the year. In the town of Zamboanga, Mindanao, P. I., there were 121 cases, with 89 deaths, among the native population from June 23 to October 18, 1909.

The following is a quotation from the report of this epidemic by Maj. Jere B. Clayton, Medical Corps:

The first 4 cases were reported from Caua Caua, June 23, the victims being Moros. Of these, 3 proved fatal after a duration of only a few hours. Such a high mortality seemed suggestive of an intensely virulent type of infection. This, together with the proverbial disregard of the Moro of personal hygiene, the abject squalor and filth under which he lives, his utter indifference to even a modicum of care or cleanliness in the preparation of his food, or to the character and quality of his food, being often content with tainted fish and semiputrid offal, bespoke an outbreak of serious proportions among an element comprising more than one-sixth of the total population of this community.

In view of the facility with which these people might conceal cases, if they cared to do so, thus largely nullifying the work of the health authorities, it was found necessary to deal with them only with the utmost diplomacy and tact. And it was for this reason that, out of respect for their religious prejudices, as well as to gain their cooperation and good will, no post-mortem examinations of Moro subjects were made.

Fortunately, however, but few other cases occurred among them. One man was found on the beach, near constabulary headquarters, in a dying condition, September 7. Subsequently another case brought consternation to many, especially to Americans, on account of its having occurred in one of the stalls of the Moro exchange, where various popular foodstuffs are sold (September 8).

This afforded opportunity for a thorough renovation and disinfection of the building and its premises, which made it essential to close the same for a period of four days, during which time 47 people were held in strict quarantine. As an additional precaution, certain food substances, such as green fruits and vegetables, as well as a considerable quantity of dried fish, were destroyed. From this, however, no loss accrued to the vendors, as they were promptly reimbursed by the government.

According to the records of this office, which are the outcome of the most careful and painstaking investigation and therefore believed to be accurate, there were, in all, only 11 cases, with 6 deaths, among Moros—a fact as surprising as it is gratifying.

Meanwhile, cholera had made its first appearance for the season among the Filipinos, a number of cases having been reported July 15 from that section of the city known as Tetuan.

The situation had by this time developed the usual quota of self-wise carping critics, even among the most intelligent classes, who, restive under what they chose to term the "unwarranted" and "unnecessary" restrictions imposed upon them by this office, published broadcast all manner of groundless and harmful reports, with a view to minimizing the seriousness of the situation as well as thwarting the plans of the health authorities. It was loudly proclaimed that the "prevailing malady" was not cholera; that it was not transmissible; that it was merely a stomach and intestinal trouble which appeared each year coincidentally with the marketing of certain green fruits, such as mangoes, and that there was no occasion for alarm.

While the health officer was convinced, from the clinical manifestations alone, of the true nature of the disease, yet, in order to remove all possibility of doubt, a post-mortem examination was made in the case of the first Filipino fatally attacked, and a positive conclusion reached through laboratory methods of diagnosis. This should have convinced the most skeptical, if willing to be convinced.

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The absence of this disease among American officers and enlisted men and their families under such circumstances is excellent proof of the thoroughness and effectiveness of the sanitary measures employed. The Americans have been thoroughly imbued with the importance of abstaining from eating uncooked native vegetables and of using only sterilized water for drinking.

DYSENTERY.

The occurrence of this disease shows a marked increase over the rate for 1908, being 43.06 as compared with 26.23. It was also slightly higher than the rate of 42.23 for 1907. The proportion of amœbic to bacillary infection was 1.58 to 1 as compared with 3.31 to 1 for 1908 and 17 to 1 for 1907. The actual number of amœbic was 238 as compared with 149 for 1908 and 369 for 1907, while for the bacillary type there were 150 cases as compared with 45 for the year before. A severe epidemic of dysentery, principally bacillary, Shiga type, occurred at Camp McGrath, Batangas, there being 97 cases with 5 deaths, including officers and civilians. The prevalence of dysentery throughout the islands during the year is mentioned under another heading.

DENGUE.

There were 1,672 admissions as compared with 1,162 for the preceding year. As this disease caused only 1 death, and had a small constant noneffective rate, it constitutes rather an inconvenience than a sanitary danger.

BERIBERI.

Two cases of beriberi occurred in white soldiers during the year and no deaths. There was 1 case in 1908. Beriberi occupied the fourth place among causes for admission for the native troops, being 558 with 12 deaths. The new theory in regard to the causation of beriberi, with measures taken to prevent its occurrence, is discussed under the subject of the tropical board.

LEPROSY.

One case of leprosy developed during the year in a private of the Twenty-sixth Infantry stationed at the Cuartel de Espana, Manila, P. I.

TUBERCULOSIS.

The admission rate for all forms of tuberculosis was 5.06, being somewhat less than 6.18 for the preceding year. The rate for the white troops was 4.96 as compared with 6.04 for the colored.

VENEREAL DISEASES.

The first place among causes for admissions is still occupied by venereal diseases. They constitute more than one-sixth of the total number of admissions for diseases; nearly 94 per cent of the admissions

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for this cause for all troops were from American troops. The rate was higher than 289.62 for 1908, being 301.85. It was 290.29 for white and 418.46 for colored troops. Among the Filipino troops it occupied the sixth place only, this marked difference doubtless being a result of the fact that a majority of the native soldiers are married. Over one-third of the total number of days lost were incurred not in line of duty, due almost entirely to venereal causes.

ALCOHOLISM.

The admission rate for alcoholism was 22.19, somewhat less than 25.31 for 1908 and 29.23 for 1907. The rate for white troops was 23.53 and for colored 8.63.

INSANITY.

The admission rate for insanity was 1.56 as compared with 1.09 for 1908. The rate for white troops was 1.54 and for colored 1.73. In the United States the rate was 1.63, so that apparently there is not sufficient data for believing, as is generally done, that insanity is more prevalent among troops serving in the Philippines than in those serving in the United States.

DIARRHEA AND ENTERITIS.

The admission rate for these diseases was 59.79, as compared with 85.21 for 1908, 72.43 in 1907, and 130.69 for 1906.

TOTAL RATE FOR DISEASES AND EXTERNAL CAUSES.

The total rate for admissions for all diseases was 1,156.49, which was a little lower than 1,207.84 for 1908. The rate for external causes was also lower, being 191.53 as compared with 231.81 for 1908. The total rate for all diseases and external causes for 1909 was 1,348.02, and for 1908 it was 1,439.65. In the United States the rate for all diseases was 821.77; for all external causes, 202.59; total for all causes, 1,024.37.

INFLUENCE OF STATION.

AMERICAN TROOPS.

The Department of Luzon had the highest admission rate and the Department of Mindanao the lowest. For deaths, the Department of Mindanao had the highest rate and Visayas the lowest. For total noneffective rate from sickness, Luzon has the highest, Mindanao the lowest, while Luzon has the highest average for the number of days lost and Visayas the lowest.

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TABLE NO. 38.— *Movement of sick American troops in the Philippines.*

Department and Island.	Mean strength.	Ratios per 1,000 of mean strength.												Average number of days lost.			
		Admissions to sick report.		Discharged on surgeon's certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.	
										From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.					
		From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	Total.	In hospital.	Total.	In hospital.	For each soldier.	For each case.	For each soldier.	For each case.
Department of Luzon	6,873	1,572.24	981.23	10.33	8.15	5.24	3.64	15.57	11.79	48.48	39.95	22.38	18.12	17.70	11.26	8.17	8.32
Department of the Visayas	1,952	1,130.12	665.98	17.42	15.37	3.59	2.56	21.01	17.93	43.63	40.50	22.96	21.26	15.92	14.09	8.38	12.58
Samar Island	26	115.38	115.38	.....	.....	.....	.....	.....	.....	4.95	4.74	4.95	4.74	1.81	15.67	1.81	15.67
Leyte Island	664	951.81	621.99	10.54	7.53	4.52	1.51	15.06	9.04	25.37	24.25	13.36	12.53	9.26	9.73	4.88	7.84
Guimaras Island	784	1,309.95	760.20	22.96	21.68	2.55	2.55	25.51	24.23	63.12	57.24	35.61	32.42	23.04	17.59	13.00	17.10
Cebu Island	297	1,208.75	643.10	23.57	20.20	6.73	6.73	30.30	26.93	41.48	40.23	14.90	14.55	15.14	12.52	5.44	8.46
Panay Island	181	1,022.10	535.91	11.05	11.05	.....	.....	11.05	11.05	35.24	33.14	19.19	18.32	12.86	12.58	7.01	12.07
Department of Mindanao	3,883	1,069.79	655.67	11.07	9.79	6.95	2.83	18.02	12.62	40.94	38.07	20.39	19.05	14.94	13.97	7.44	11.35
Mindanao Island	2,863	1,007.68	595.18	11.18	9.78	4.54	1.75	15.72	11.53	38.15	34.89	19.41	17.84	13.92	13.82	7.08	11.90
Jolo Island	1,020	1,244.12	825.49	10.78	9.80	13.73	5.88	24.51	15.68	48.78	46.97	23.15	22.43	17.80	14.31	8.45	10.24
Total	12,844	1,348.02	832.37	11.43	9.61	6.43	4.09	17.86	13.70	52.57	46.61	25.97	22.99	19.19	14.24	9.48	11.39

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INFLUENCE OF SEASON.

Exclusive of injuries, venereal diseases, alcoholism, and vaccinia, which are not influenced by season, the highest admission rate occurred in June and the second highest in July. The highest noneffective rate was in June and the second highest in November. The highest rate for malarial fevers was in May, for dengue in June, for dysentery in August, and for diarrhea and enteritis in July. The lowest admission rate was in February, which was the highest last year. The lowest noneffective rate was in December. The highest death rate occurred in January and the lowest in August.

TABLE No. 39.—*Influence of season on American troops in the Philippines.*

Month.	Mean strength.	Ratios per 1,000 of mean strength.								Prevailing diseases (exclusive of venereal diseases, etc.).
		All causes.					Exclusive of venereal diseases, alcoholism, vaccinia, and injuries.			
		Admissions.		Deaths.	Noneffective.					
		Total.	Hospital.		Total.	Hospital.	Admissions.	Deaths.	Noneffective.	
Jan.....	12,633	106.78	84.62	0.87	44.09	39.03	64.91	0.64	24.50	Malaria, 133; diarrhea and enteritis, 66; dysentery, 52; dengue, 46.
Feb.....	12,493	97.09	77.72	.47	51.25	45.98	53.07	.31	24.17	Malaria, 136; diarrhea and enteritis, 40; dysentery, 33.
Mar.....	12,322	108.10	88.95	.62	55.40	50.64	62.65	.47	24.69	Malaria, 170; dengue, 59; diarrhea and enteritis, 50.
Apr.....	13,146	102.01	86.64	.50	50.95	45.95	59.33	.28	22.39	Malaria, 173; dengue, 48; diarrhea and enteritis, 42.
May....	13,494	119.46	98.12	.45	56.12	50.00	73.59	.22	24.54	Malaria, 195; diarrhea and enteritis, 80; dysentery, 51.
June....	13,302	127.95	93.07	.82	57.23	47.73	87.96	.60	29.81	Dengue, 276; malaria, 132; diarrhea and enteritis, 95; dysentery, 71.
July....	13,027	117.76	97.26	.61	54.93	47.53	78.91	.23	29.08	Dengue, 255; malaria, 96; diarrhea and enteritis, 91; dysentery, 69.
Aug.....	13,202	121.72	89.53	.28	52.72	45.78	76.50	.14	27.84	Dengue, 230; malaria, 124; dysentery, 76.
Sept....	12,917	112.72	96.62	.38	54.50	48.84	67.82	.15	25.93	Dengue, 193; malaria, 84; diarrhea and enteritis, 52.
Oct.....	12,654	121.07	102.61	.38	52.81	47.62	78.07	.31	27.16	Dengue, 195; malaria, 72; diarrhea and enteritis, 56; dysentery, 44.
Nov.....	12,331	111.51	87.75	.85	56.67	50.64	68.04	.62	29.69	Dengue, 157; diarrhea and enteritis, 67; malaria, 63; dysentery, 55.
Dec.....	12,606	100.68	88.77	.23	43.87	39.58	59.65	.16	21.68	Dengue, 141; diarrhea and enteritis, 83; malaria, 65.
Total.	12,844	1,348.02	1,087.90	6.43	52.57	46.61	832.37	4.09	25.97	Dengue, 1,672; malaria, 1,443; diarrhea and enteritis, 768; dysentery, 553.

INFLUENCE OF AGE (DISEASE ONLY).

Excluding injuries, the highest admission, discharge, and noneffective rates were noted for soldiers under 25 years of age. The highest death rate was for those between 40 and 44, and the lowest death rate for those between 25 and 29.

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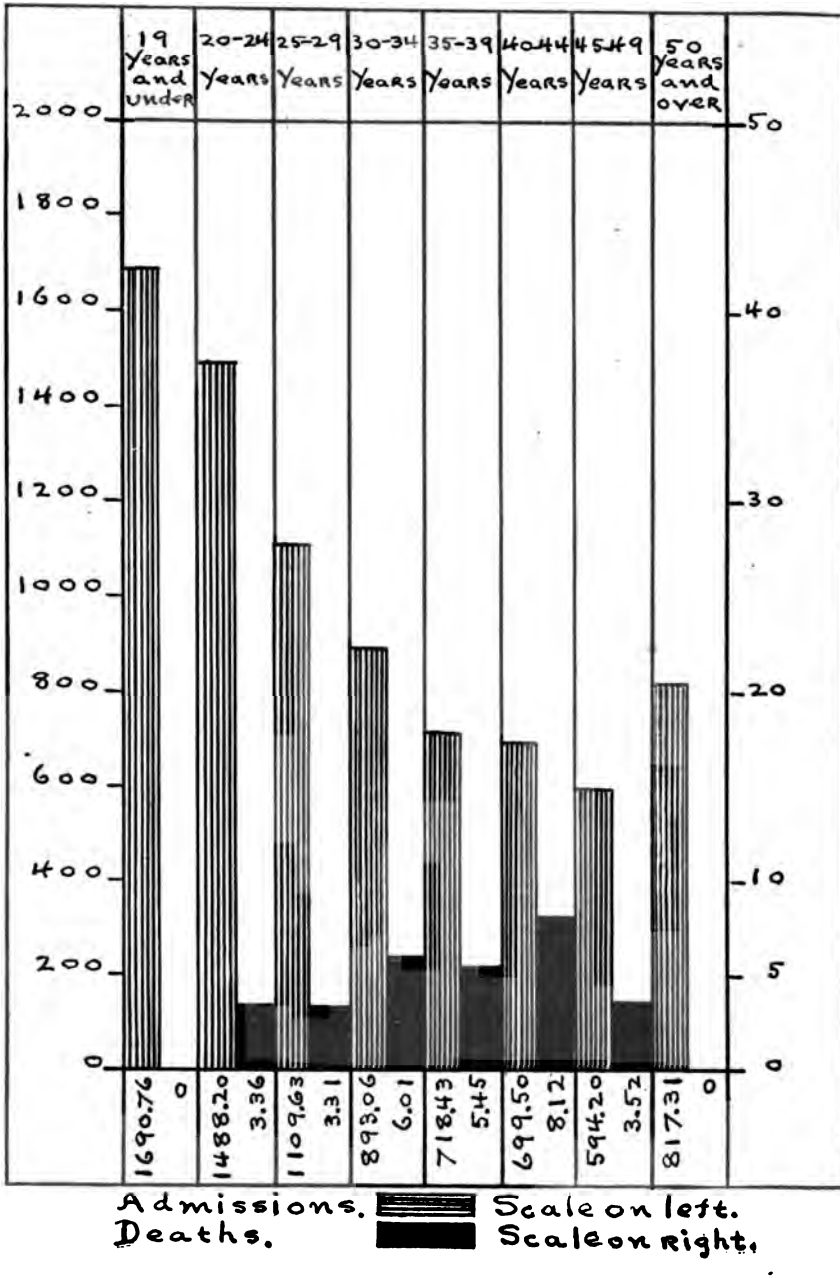
Chart U.—*Showing by ages the relative admission and death ratios for diseases per thousand of mean strength in the Philippine Islands (American troops).*



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LENGTH OF SERVICE (DISEASE ONLY).

Excluding injuries, the highest admission rate occurred in the first year of service; the highest noneffective in the second; the second highest admission in the second, and the second highest noneffective in the first year; the lowest admission and noneffective, in those having ten years or more service. The highest discharge rate occurred in the first year and the lowest in the third. The highest death rate occurred among those having more than ten years service, and the lowest in the fourth year of service.

TABLE No. 40.—*Influence of disease by age and length of service on American troops in the Philippines.*

Length of service.	Mean strength.	Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.	Ratios per 1,000 of mean strength.			
						Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.
Under 1 year	1,138	1,685	27	6	68.81	1,480.67	23.06	5.12	60.46
1 to 2 years	2,870	3,994	43	10	189.88	1,391.64	14.56	3.39	66.16
2 to 3 years	2,313	2,994	9	6	107.99	1,294.42	3.78	2.52	46.69
3 to 4 years	1,011	1,169	12	2	47.55	1,156.28	11.54	1.92	47.03
4 to 5 years	1,032	1,091	9	7	38.40	1,057.17	8.48	6.60	37.21
5 to 10 years	2,466	2,391	23	7	95.18	969.59	9.06	2.76	38.60
10 years and over	2,014	1,530	16	16	61.41	759.68	7.73	7.73	30.50
Total	12,844	14,854	139	54	609.21	1,156.49	10.52	4.09	47.43

Age.	Mean strength.	Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.	Ratios per 1,000 of mean strength.			
						Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly noneffective.
19 years and under	249	421	.....	.....	16.35	1,690.76	.....	.....	65.65
20 to 24 years	4,621	6,877	52	16	276.93	1,488.20	10.94	3.36	59.93
25 to 29 years	3,822	4,241	41	13	173.85	1,109.63	10.43	3.31	45.49
30 to 34 years	2,104	1,879	22	13	80.08	893.06	10.17	6.01	38.06
35 to 39 years	1,069	768	11	6	33.88	718.43	10.00	5.45	31.69
40 to 44 years	599	419	9	5	17.48	699.50	14.61	8.12	29.18
45 to 49 years	276	164	4	1	7.44	594.20	14.08	3.52	26.97
50 years and over	104	85	.....	.....	3.21	817.31	.....	.....	30.85
Total	12,844	14,854	139	54	609.21	1,156.49	10.52	4.09	47.43

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TABLE No. 41.—*Discharges for disability, American troops in the Philippine Islands.*

Causes of discharge.	Number discharged.	Percentage of total discharges.	Discharges for disability.				
			In line of duty.	Not in line of duty.		Discharged for disability before assignment.	
				Contracted before enlistment.	Contracted after enlistment.	In line of duty.	Not in line of duty.
General diseases	61	43.88	47	2	12	.....	.....
Tuberculosis (lungs, 43; other organs, 1)	44	31.65	42	2	.....	.....	.....
Venereal diseases	12	8.63	.....	.....	12	.....	.....
Syphilis (secondary, 4; tertiary, 3)	7	5.04	.....	.....	7	.....	.....
Gonorrhea (rheumatism, 3; diseases of the eye, 2)	5	3.60	.....	.....	5	.....	.....
Erysipelas	1	.72	1	.....	.....	.....	.....
Cancer	1	.72	1	.....	.....	.....	.....
Chronic articular rheumatism	1	.72	1	.....	.....	.....	.....
Anemia	1	.72	1	.....	.....	.....	.....
Leprosy	1	.72	1	.....	.....	.....	.....
Diseases of the nervous system	39	28.06	17	18	4	.....	.....
Insanity	26	18.71	11	12	3	.....	.....
Epilepsy	7	5.04	1	6	.....	.....	.....
Cerebral congestion and hemorrhage	3	2.16	3	.....	.....	.....	.....
Primary lateral sclerosis	1	.72	1	.....	.....	.....	.....
Chronic neuritis	1	.72	1	.....	.....	.....	.....
Chronic neurasthenia	1	.72	.....	.....	1	.....	.....
Diseases of the circulatory system	15	10.79	10	5	.....	.....	.....
Organic disease of the heart	8	5.76	6	2	.....	.....	.....
Functional disease of the heart	4	2.88	1	3	.....	.....	.....
Aneurism	3	2.16	3	.....	.....	.....	.....
Diseases of the organs of special sense	7	5.04	5	2	.....	.....	.....
Diseases of the middle and internal ear (otitis, 4; mastoiditis, 1)	5	3.60	3	2	.....	.....	.....
Chronic trachoma	1	.72	1	.....	.....	.....	.....
Anisometropia	1	.72	1	.....	.....	.....	.....
Diseases of the digestive system	7	5.04	4	3	.....	.....	.....
Hernia	2	1.44	1	1	.....	.....	.....
Chronic gastritis	1	.72	1	.....	.....	.....	.....
Chronic indigestion	1	.72	.....	1	.....	.....	.....
Chronic sprue	1	.72	1	.....	.....	.....	.....
Chronic cholecystitis	1	.72	1	.....	.....	.....	.....
Cirrhosis of the liver	1	.72	.....	1	.....	.....	.....
Diseases of the respiratory system	3	2.16	2	1	.....	.....	.....
Chronic pleurisy	2	1.44	2	.....	.....	.....	.....
Chronic asthma	1	.72	.....	1	.....	.....	.....
Congenital malformations and arrested development (flat feet, 1; low mentality, 1; overriding 4th toes both feet, 1)	3	2.16	.....	3	.....	.....	.....
Diseases of the genito-urinary system	2	1.44	.....	2	.....	.....	.....
Chronic enuresis	2	1.44	.....	2	.....	.....	.....
Diseases of the organs of locomotion	2	1.44	1	1	.....	.....	.....
Scoliosis dorso-lumbar region of spine	1	.72	.....	1	.....	.....	.....
Talipes varus	1	.72	1	.....	.....	.....	.....
Total	139	100.00	86	37	16	.....	.....
EXTERNAL CAUSES.							
Fractures	4	33.33	4	.....	.....	.....	.....
Lacerated wounds	2	16.67	2	.....	.....	.....	.....
Secondary results of injury	2	16.67	.....	2	.....	.....	.....
Sprain	1	8.33	1	.....	.....	.....	.....
Concussion of spine	1	8.33	1	.....	.....	.....	.....
Contusion	1	8.33	1	.....	.....	.....	.....
Gunshot wounds	1	8.33	1	.....	.....	.....	.....
Total	12	100.00	10	2	.....	.....	.....
Total diseases	139	92.05	86	37	16	.....	.....
Total external causes	12	7.95	10	2	.....	.....	.....
Grand total	151	100.00	96	39	16	.....	.....

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TABLE No. 42.—*Enlisted men invalided home from the Philippine Islands.*

Causes.	Number of cases.	Percentage of total cases.	Duty.	Discharged on surgeon's certificate of disability.	Died.	Otherwise disposed of.	Remaining at end of year.
Tuberculosis	63	19.15	5	10	[a] 3	1	44
Dysentery	41	12.46	27			4	10
Venereal diseases	38	11.55	10	14		1	13
Insanity	21	6.38		18			3
Sprue	18	5.47	10	1		3	4
Organic disease of the heart	13	3.95	3	7		2	1
Epilepsy	9	2.74		6			3
Fractures, exclusive of gunshot	9	2.74	3	3			3
Secondary results of injury	8	2.43		2		2	4
Neurasthenia	7	2.13	4	1			2
Functional disease of the heart	7	2.13	2	4		1	
Malarial cachexia	5	1.52	1			1	3
Enteritis	5	1.52	4				1
Aneurism	4	1.22		3			1
Chronic articular rheumatism	4	1.22	1	1			2
Congenital malformations	4	1.22		3			1
Gunshot wounds	4	1.22					4
Appendicitis	3	.91	2				1
Pleurisy	3	.91	2	1			
Incised wounds	3	.91					3
Lacerated wounds	3	.91		2			1
Debility following operation and disease	3	.91	1		1		1
Progressive locomotor ataxia	2	.61			1		1
Other diseases of the spinal cord	2	.61		1			1
Cerebral congestion and hemorrhage	2	.61		2			
Melancholia	2	.61				1	1
Typhoid fever	2	.61	1				1
Trachoma	2	.61		1			1
Diseases of the middle and internal ear	2	.61		2			
Asthma	2	.61	1	1			
Gastritis	2	.61	1	1			
Abscess of the liver	2	.61	1		1		
Chronic nephritis	2	.61			1		1
Other diseases of the bladder	2	.61		2			
Hernia	2	.61		1			1
Other diseases of the circulatory system	2	.61	1				1
Other diseases of the joints, except tuberculosis and rheumatism	2	.61					2
Muscular rheumatism and myalgia	2	.61	1				1
Beriberi	1	.30	1				
Osteo-sarcoma	1	.30		1			
Anemia	1	.30		1			
Chronic alcoholism	1	.30					1
Chronic narcotic poisonings	1	.30	1				
Softening of the brain	1	.30					1
General paralysis of the insane	1	.30		1			
Other diseases of the nervous system	1	.30					1
Retinitis	1	.30		1			
Other diseases of the eye	1	.30	1				
Diseases of the thyroid body	1	.30	1				
Pneumonia	1	.30	1				
Cirrhosis of the liver	1	.30					1
Cholangitis	1	.30				1	
Furunculosis	1	.30					1
Periostitis	1	.30	1				
Other nontubercular diseases of the bones	1	.30		1			
Arthritis	1	.30					1
Other diseases of the organs of locomotion	1	.30		1			
Dislocations	1	.30	1				
Punctured wounds	1	.30					1
Under observation	1	.30	1				
Total cases	329	100.00	89	93	7	17	123
Percentage of total cases	100.00		27.05	28.27	2.13	5.17	37.38

[a] One died of acute yellow atrophy of the liver.

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TABLE No. 43.—*Causes of death, American troops, Philippine Islands.*

Causes of death.	Number of Deaths.	Ratios per 1,000 of— Mean strength.	Total deaths.
DISEASES.			
Dysentery (amebic, 3; bacillary, 6; catarrhal and not given, 5)	14	1.06	259.26
Tuberculosis (of the lungs, 5; other organs, 1)	6	.45	111.11
Organic disease of the heart	6	.45	111.11
Typhoid fever	2	.15	37.04
Pyemia and septicemia	3	.23	55.56
Abscess of the liver	3	.23	55.56
Appendicitis	3	.23	55.56
Acute endocarditis	2	.15	37.04
Dengue	1	.08	18.52
Pernicious malarial fever	2	.15	37.04
Carcinoma	1	.08	18.52
Diabetes	1	.08	18.52
Cerebral meningitis	1	.08	18.52
Locomotor ataxia	1	.08	18.52
Paralysis without specified cause	1	.08	18.52
Rupture of coronary artery (cause unknown)	1	.08	18.52
Pneumonia	1	.08	18.52
Acute yellow atrophy of the liver	1	.08	18.52
Acute nephritis	1	.08	18.52
General debility and atrophy of unknown cause	1	.08	18.52
Enteritis	1	.08	18.52
Chronic pancreatitis	1	.08	18.52
Total diseases	54	4.09	1,000.00
EXTERNAL CAUSES.			
Gunshot wounds (suicidal, 4; homicidal, 3; killed in action, 3; wounded in action, 3; accidental, 3)	16	1.21	516.13
Crushing (kicked by horse, 2; run over by street car, 2; caught under falling building, 1—all accidental)	5	.38	161.29
Fractures (of skull, 1; of spine, 1; of pelvis, 1—all accidental)	3	.23	96.77
Incised wounds (homicidal, 1; accidental, 2)	3	.23	96.77
Drowning (accidental)	2	.15	64.52
Punctured wounds (accidental)	1	.08	32.26
Contusions (accidental)	1	.08	32.26
Total external causes	31	2.35	1,000.00
Total diseases	54	4.09	635.29
Total external causes	31	2.35	364.71
Grand total	85	6.43	1,000.00

PHILIPPINE SCOUTS.

The following table shows the amount of sick for the year:

TABLE No. 44.—*Movement of sick Philippine Scouts, year 1909.*

	From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.	
	Total.	In hospital.	Total.	In hospital.
Ratios per 1,000 of mean strength:				
Admissions to sick report	937.98	803.87	780.03	.....
Discharges on surgeon's certificate of disability	14.44	.....	13.36	.....
Deaths	7.40	.....	6.14	.....
Total losses	21.84	.....	19.50	.....
Noneffective	35.11	31.42	28.66	25.85
Average number of days lost:				
For each soldier	12.82	11.47	10.46	9.43
For each case	13.66	14.26	13.41	.....

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The admission rate is less than for the preceding year, being 937.98 as compared with 1,057.62. The total loss is, however, higher, being 21.84 as compared with 18.64 for 1908. The noneffective rate is exactly the same as for last year, being 35.11. In the total losses, the death rate was lower, being 7.40 as compared with 8.26, but the discharge rate was higher, being 14.44 as compared with 10.38. The admission rate for malarial fever is 203.95 as compared with 236.97; dysentery, 9.50 as compared with 11.41; venereal disease, 48.61 as compared with 56.05; diarrhea and enteritis, 38.74 as compared with 39.53; beriberi, 103.93 as compared with 121.53; Asiatic cholera, 1.68 as compared with 0.79; and tuberculosis (all), 5.96 as compared with 6.49. The rate of the number of deaths from disease was greater, being 6.14 as compared with 5.57, but the rate for external causes was less, being 1.26 as compared with 2.69. The large death rate from disease was due to the fact that there were 12 deaths from beriberi as compared with 7 for 1908, and 7 deaths from Asiatic cholera as compared with 4.

The larger discharge rate was due to the greater number of discharges for beriberi and tuberculosis, in the former being 33 as compared with 13, and in the latter 28 as compared with 20.

TABLE No. 45.—*Causes of death among Philippine Scouts, year 1909.*

Causes of death.	Number of deaths.	Ratios per 1,000 of—	
		Mean. strength.	Total deaths.
DISEASES.			
Beriberi	12	2.17	352.94
Cholera Asiatica	7	1.26	205.88
Pneumonia	3	.54	88.24
Septicemia	2	.36	58.82
Hemorrhages	2	.36	58.82
Organic disease of the heart	2	.36	58.82
Typhoid fever	1	.18	29.41
Dysentery	1	.18	29.41
Cancer	1	.18	29.41
Broncho-pneumonia	1	.18	29.41
Abscess of the liver	1	.18	29.41
Chronic nephritis	1	.18	29.41
Total	34	6.14	1,000.00
EXTERNAL CAUSES.			
Gunshot wounds (suicidal, 2; homicidal, 1; accidental, 1)	4	.72	571.43
Incised wounds (suicidal)	1	.18	142.86
Crushing	1	.18	142.86
Ptomaine poisoning	1	.18	142.86
Total	7	1.26	1,000.00
Total disease	34	6.14	829.27
Total external causes	7	1.26	170.73
Grand total	41	7.40	1,000.00

The principal differences from the preceding year are 12 deaths from beriberi as compared with 7 for 1908; 7 deaths from Asiatic cholera as compared with 4; 2 deaths from typhoid fever as compared with none, and no deaths from tuberculosis as compared with 2. There were 7 deaths from external causes as compared with 14 for last year.

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DISCHARGES FOR DISABILITY.

The next table shows all discharges for disability.

TABLE No. 46.—*Causes of discharges for disability, Philippine Scouts, year 1909.*

Causes of discharge.	Number of cases.	Percentage of total discharges.	In line of duty.	Not in line of duty.	
				Contracted before enlistment.	Contracted after enlistment.
DISEASES.					
Beriberi	33	43.42	31	2	.....
Pulmonary tuberculosis	28	36.84	27	1	.....
Organic heart disease	3	3.95	3	.....	.....
Epilepsy	2	2.63	2	.....	.....
Gonorrheal rheumatism	2	2.63	.....	.....	2
Pulmonary paragonimiasis	2	2.63	2	.....	.....
Yaws	1	1.32	.....	1	.....
Paralysis	1	1.32	1	.....	.....
Neurasthenia	1	1.32	.....	.....	1
Hæmoptysis	1	1.32	1	.....	.....
Chronic nephritis	1	1.32	1	.....	.....
Mental deficiency	1	1.32	.....	1	.....
Total	76	100.00	68	5	3
EXTERNAL CAUSES.					
Gunshot wounds	2	50.00	2	.....	.....
Fracture, right astragalus	1	25.00	1	.....	.....
Lacerated wound	1	25.00	1	.....	.....
Total	4	100.00	4	.....	.....
Total diseases	76	95.00	68	5	3
Total external causes	4	5.00	4	.....	.....
Grand total	80	100.00	72	5	3

The most notable differences in this table from the preceding year are the 33 discharges for beriberi as compared with 13, and 28 for pulmonary tuberculosis with 20.

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INFLUENCE OF SEASON.

The following table shows the influence of season.

TABLE No. 47.—*Influence of season on Philippine Scouts, year 1909.*

Month.	Mean strength.	Ratios per 1,000 of mean strength.								Prevailing diseases (exclusive of venereal diseases, etc.)
		All causes.					Exclusive of venereal diseases, alcoholism, vaccinia, and external causes.			
		Admissions.		Deaths.	Noneffective.					
		Total.	Hospital.		Total.	Hospital.	Admissions.	Deaths.	Noneffective.	
Jan.....	5,501	92.35	75.80	1.29	40.43	35.75	79.99	1.11	34.52	Beriberi, 128; malarial diseases, 90; constipation, 29.
Feb.....	5,354	79.19	65.18	1.10	46.33	40.16	64.25	1.10	40.53	Beriberi, 84; malarial diseases, 67; constipation, 36.
Mar.....	5,438	91.58	77.79	.55	45.11	39.76	77.05	.55	37.01	Beriberi, 85; malarial diseases, 71; constipation, 36.
Apr.....	5,715	73.14	60.89	.36	39.29	35.18	62.29	.18	33.57	Beriberi, 86; malarial diseases, 78; constipation, 23.
May.....	5,635	62.11	48.98	.36	36.69	32.21	50.58	.18	31.44	Malarial diseases, 68; beriberi, 27; acute abscesses, 24; acute bronchitis, 19.
June....	5,452	64.20	56.86	.54	28.10	25.33	54.66	.54	23.64	Malarial diseases, 63; diarrhea and enteritis, 34; acute bronchitis, 23; constipation, 19.
July.....	5,269	72.50	65.86	.72	28.56	25.92	62.44	.54	23.30	Malarial diseases, 96; beriberi, 28; acute abscesses, 19; acute bronchitis, 18.
Aug.....	5,251	76.37	68.75	.36	31.63	28.26	61.13	.36	24.74	Malarial diseases, 75; beriberi, 38; acute abscesses, 20; constipation, 18.
Sept....	5,222	77.18	66.45	.72	29.45	26.31	63.39	.72	21.74	Malarial diseases, 117; diarrhea and enteritis, 27; acute bronchitis, 17; acute abscesses, 17.
Oct.....	5,182	81.82	69.47	.54	30.53	27.59	65.23	.18	22.48	Malarial diseases, 114; beriberi, 30; acute bronchitis, 21; diarrhea and enteritis, 19; acute abscesses, 18.
Nov.....	5,157	86.30	75.05	.18	32.76	30.28	71.95	.....	25.87	Malarial diseases, 130; constipation, 32; acute bronchitis, 22; beriberi, 21.
Dec.....	5,248	82.51	74.51	.72	32.09	29.94	67.84	.72	24.51	Malarial diseases, 126; acute bronchitis, 31; constipation, 25.
Total.	5,369	937.98	803.87	7.40	35.11	31.42	780.03	6.14	28.66	Malarial diseases, 1,095; beriberi, 558; constipation, 273; acute bronchitis, 224; diarrhea and enteritis, 208.

Excluding injuries, venereal diseases, alcoholism, and vaccinia, over which causes of admission the seasons have little or no influence, the highest admission rate is in January and the lowest in May; the highest constant noneffective rate is in February and the lowest in June. The highest rate for malarial fevers was in November, while for American troops it was in May.

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RECRUITING.

The following is from General Order No. 1, Headquarters, Philippines Division, Manila, P. I., January 1, 1909:

The physical examination of recruits for the Philippine Scouts will be conducted in accordance with the authorized manual for examination of recruits, with the following exceptions:

No recruit for the scouts will be accepted for enlistment who is under 59 inches in height or 100 pounds in weight.

The following table will be used in determining the minimum allowable weights and chest measurements relative to height:

Height.		Weight.	Chest measurement (at expiration).
Feet.	Inches.		
		Pounds.	*Inches.*
4 11/12	59	100	28¼
5	60	101	28¾
5 1/12	61	102	29
5 2/12	62	103	29¼
5 3/12	63	105	29½
5 4/12	64	107	29¾
5 5/12	65	110	30
5 6/12	66	113	30¼
5 7/12	67	118	30½
5 8/12	68	124	30¾
5 9/12	69	127	31
5 10/12	70	130	31¼

Chest measurements at expiration should be taken under conditions of normal respiratory effort. Chest mobility and measurement at inspiration will be taken, but will not be used as data for rejection of a candidate for enlistment unless they are such as to indicate abnormality or a diseased condition.

In the case of an especially desirable applicant who is active, has firm muscles, and is evidently vigorous and healthy, who varies from the established standard, special authority will be obtained for enlistment. Great care in enlistments for Philippine Scouts is enjoined upon all recruiting officers. No applicant will be accepted without presenting evidence of character and previous employment and exhibiting good intelligence.

The results of the examinations of applicants for enlistment in the Philippine Scouts are given in the following table and are of interest as showing the anthropometrical characteristics of the Filipino races. The proportion of recruits accepted to those examined is about the same as for 1908, but the number was very much less, being 689 in 1909 and 2,506 in 1908.

TABLE No. 48.—*Examination of Filipino applicants for enlistment during 1909.*

	Number.	Ratios per 1,000 examined.
Examined by medical officers	767	1,000.00
Accepted by medical officers	689	898.31
By first enlistment	357	465.45
Other enlistments	332	432.86
Rejected by medical officers	74	96.48
Declined	4	5.21

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Table No. 49 shows ages of accepted recruits.

TABLE No. 49.—*Filipino recruits (accepted).*

	Number.	Ratio.
18 years and under	3	4.35
19 years	5	7.26
20 years	9	13.06
21 years	134	194.48
22 years	90	130.62
23 years	45	65.31
24 years	76	110.30
25 years	63	91.44
26 years	45	65.31
27 years	53	76.92
28 years	37	53.70
29 years	26	37.74
30 years	20	29.03
31 years	24	34.83
32 years	22	31.93
33 years	8	11.61
34 years	10	14.51
35 years	4	5.81
36 years	2	2.90
37 years	6	8.71
38 years	2	2.90
39 years	.....	.....
40 years and over	5	7.26
Total	689	1,000.00

Sixty-one and seven-tenths per cent were 25 years of age or under.

Table No. 50 shows the height of recruits and the relation of height to age.

TABLE No. 50.—*Filipino recruits—relation of height to age.*

ABSOLUTE NUMBERS.

Height.	Age.									Total.
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	
4 feet 11 inches	.....	.....	.....	5	2	1	.....	1	4	13
5 feet	.....	.....	.....	11	6	2	1	4	9	33
5 feet 1 inch	.....	2	.....	19	15	2	10	7	23	78
5 feet 2 inches	1	.....	1	30	9	10	8	10	32	101
5 feet 3 inches	.....	2	1	27	18	8	19	11	56	142
5 feet 4 inches	.....	1	5	17	15	10	12	13	46	119
5 feet 5 inches	1	.....	1	13	16	5	14	7	40	97
5 feet 6 inches	1	.....	1	7	4	1	6	6	26	52
5 feet 7 inches	.....	.....	.....	3	2	2	4	3	11	25
5 feet 8 inches	.....	.....	.....	2	1	2	1	1	9	16
5 feet 9 inches	.....	.....	.....	.....	1	1	.....	.....	3	5
5 feet 10 inches	.....	.....	.....	.....	1	1	.....	.....	4	6
5 feet 11 inches and over	.....	.....	.....	.....	.....	.....	1	.....	1	2
Total	3	5	9	134	90	45	76	63	264	689

PROPORTIONAL NUMBERS.

4 feet 11 inches	.....	.....	.....	37.31	22.22	22.22	.....	15.87	15.15	18.87
5 feet	.....	.....	.....	82.09	66.67	44.44	13.16	63.49	34.09	47.90
5 feet 1 inch	.....	400.00	.....	141.79	166.67	44.44	131.58	111.11	87.12	113.21
5 feet 2 inches	333.33	.....	111.11	223.88	100.00	222.22	105.26	158.73	121.21	146.59
5 feet 3 inches	.....	400.00	111.11	201.49	200.00	177.78	250.00	174.60	212.12	206.10
5 feet 4 inches	.....	200.00	555.56	126.87	166.67	222.22	157.89	206.35	174.24	172.71
5 feet 5 inches	333.33	.....	111.11	97.02	177.78	111.11	184.21	111.11	151.52	140.78
5 feet 6 inches	333.33	.....	111.11	52.24	44.44	22.22	78.95	95.24	98.48	75.47
5 feet 7 inches	.....	.....	.....	22.39	22.22	44.44	52.63	47.62	41.67	36.28
5 feet 8 inches	.....	.....	.....	14.93	11.11	44.44	13.16	15.87	34.09	23.22
5 feet 9 inches	.....	.....	.....	.....	11.11	22.22	.....	.....	11.36	7.26
5 feet 10 inches	.....	.....	.....	.....	11.11	22.22	.....	.....	15.15	8.71
5 feet 11 inches and over	.....	.....	.....	.....	.....	.....	13.16	.....	3.79	2.90
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

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Fifty-three and three-tenths per cent of all recruits were 5 feet 3 inches or below the minimum standard for American soldiers.

Table 51 exhibits the weight of Filipino recruits and the relation of weight to age.

TABLE No. 51.—*Filipino recruits—relation of weight to age.*

ABSOLUTE NUMBERS.

Weight.	Age.									
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	Total.
99 pounds and under	.....	.....	.....	3	1	1	2	.....	4	11
100 to 104 pounds	.....	3	.....	21	9	2	5	4	16	60
105 to 109 pounds	.....	1	3	24	8	4	6	9	25	80
110 to 114 pounds	1	.....	2	27	13	9	7	18	53	130
115 to 119 pounds	.....	.....	.....	16	26	4	17	7	38	108
120 to 124 pounds	1	.....	2	21	7	6	12	8	33	90
125 to 129 pounds	.....	.....	1	11	12	7	14	8	35	88
130 to 134 pounds	.....	1	1	4	6	6	4	5	23	50
135 to 139 pounds	1	.....	.....	5	4	3	5	4	19	41
140 to 144 pounds	.....	.....	.....	1	2	3	2	.....	9	17
145 to 149 pounds	.....	.....	.....	.....	2	.....	1	.....	4	7
150 to 154 pounds	.....	.....	.....	1	.....	.....	.....	.....	1	2
155 to 159 pounds	.....	.....	.....	.....	.....	.....	.....	.....	1	1
160 pounds and over	.....	.....	.....	.....	.....	.....	1	.....	3	4
Total	3	5	9	134	90	45	76	63	264	639

PROPORTIONAL NUMBERS.

99 pounds and under	.....	.....	.....	22.39	11.11	22.22	26.32	.....	15.15	15.97
100 to 104 pounds	.....	600.00	.....	156.72	100.00	44.44	65.79	63.49	60.60	87.06
105 to 109 pounds	.....	200.00	333.33	179.10	88.89	88.89	78.95	142.86	94.70	116.11
110 to 114 pounds	333.33	.....	222.22	201.49	144.44	200.00	92.11	285.71	200.76	188.68
115 to 119 pounds	.....	.....	.....	119.40	288.89	88.89	223.68	111.11	143.94	156.75
120 to 124 pounds	333.33	.....	222.22	156.72	77.78	133.33	157.89	126.98	125.00	130.62
125 to 129 pounds	.....	.....	111.11	82.09	133.33	155.55	184.21	126.98	132.58	127.72
130 to 134 pounds	.....	200.00	111.11	29.85	66.67	133.33	52.63	79.37	87.12	72.57
135 to 139 pounds	333.33	.....	.....	37.31	44.44	66.67	65.79	63.49	71.97	59.51
140 to 144 pounds	.....	.....	.....	7.46	22.22	66.67	26.32	.....	34.09	24.67
145 to 149 pounds	.....	.....	.....	.....	22.22	.....	13.16	.....	15.15	10.16
150 to 154 pounds	.....	.....	.....	7.46	.....	.....	.....	.....	3.79	2.90
155 to 159 pounds	.....	.....	.....	.....	.....	.....	.....	.....	3.79	1.45
160 pounds and over	.....	.....	.....	.....	.....	.....	13.16	.....	11.36	5.81
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

It will be observed that the weight of 82.3 per cent of all recruits is 128 pounds or under, the minimum standard for American recruits.

Table No. 52 shows the chest measurements of recruits and the relation of chest measurement to age.

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TABLE No. 52.—*Filipino recruits—relation of chest measurement to age.*

ABSOLUTE NUMBERS.

Chest measurement.	Age.									
	18 years and under.	19 years.	20 years.	21 years.	22 years.	23 years.	24 years.	25 years.	26 years and over.	Total
26 inches and under									1	1
27 inches									1	1
28 inches				6	5				3	14
29 inches		3	2	18	8	4	3	3	17	58
30 inches	1	1	2	45	18	11	17	17	46	158
31 inches	1		2	33	30	12	25	22	72	197
32 inches	1		2	22	20	13	18	11	61	148
33 inches		1		7	5	4	6	8	29	60
34 inches				3	3		6	1	17	30
35 inches			1		1	1	1	1	13	18
36 inches and over									4	4
Total	3	5	9	134	90	45	76	63	264	689

PROPORTIONAL NUMBERS.

26 inches and under									3.79	1.45
27 inches									3.79	1.45
28 inches				44.78	55.55				11.36	20.32
29 inches		600.00	222.22	134.33	88.89	88.89	39.47	47.62	64.39	84.18
30 inches	333.33	200.00	222.22	335.82	200.00	244.44	223.68	269.84	174.24	229.32
31 inches	333.33		222.22	246.27	333.33	266.67	328.95	349.21	272.73	285.92
32 inches	333.33		222.22	164.18	222.22	288.89	236.84	174.60	231.06	214.80
33 inches		200.00		52.24	55.55	88.89	78.95	126.98	109.85	87.08
34 inches				22.39	33.33		78.95	15.87	64.39	43.54
35 inches			111.11		11.11	22.22	13.16	15.87	49.24	26.12
36 inches and over									15.15	5.81
Total	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00	1,000.00

The minimum standard chest measure for American recruits is 32 inches at expiration. Sixty-two and three-tenths per cent of all Filipino recruits have a chest measurement below this standard.

The next table, No. 53, gives the causes for rejection among the 767 applicants for enlistments examined by medical officers during the year.

TABLE No. 53.—*Causes of rejection of Filipino applicants for enlistment.*

	Total.	
	Number.	Ratios per 1,000 rejected for physical causes.
Heart disease	14	189.18
Diseases of the eye, including defects of vision	12	162.16
Under weight	11	148.65
Venereal diseases	7	94.00
Tuberculosis	6	81.09
Diseases of the skin	5	67.57
Defects of development except as shown in detail	3	40.54
Varicose veins, except as shown in detail	2	27.03
Varicocele	2	27.03
Hernia	2	27.03
Chest development, insufficient	2	27.03
Flat feet	2	27.03
Diseases of the nervous system, except as shown in detail	1	13.51
Hemorrhoids	1	13.51
Diseases of the respiratory system	1	13.51
Diseases of the digestive system, except as shown in detail	1	13.51
Diseases of the genito-urinary system, nonvenereal	1	13.51
Under height	1	13.51
Total	74	1,000.00

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Diseases of the heart constitute the principal cause for rejection. Notwithstanding the low standard of weight required for these troops, 11 being accepted with a weight of 99 pounds or less, it is seen that underweight is the third most important cause for rejection, this being the principal cause in 1908.

SURGICAL OPERATIONS.

One hundred and fifty-three operations were performed upon Philippine Scouts, 151 of which were successful. There were 2 deaths, 1 due to abscess of the liver and 1 to septicæmia, following operation for abscess of the hip joint.

TABLE No. 54.—*Surgical operations performed on Filipino troops, 1909.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Ear.										
Paracentesis	Otitis media acute	2	2	....	....	....	....	....	....	2	....
	Nose.										
Excision with snare	Nasal polypus	1	1	....	....	....	....	....	....	1	....
Excision	Nasal spur	1	1	....	....	....	....	....	....	1	....
	Abdomen.										
Laparotomy	Stab wound of abdomen, suicidal.	1	1	....	....	....	1	....	....	....	....
Drainage trans-pleural route.	Abscess of liver	1	....	....	....	1	....	1	....	....	....
Appendectomy, 8; incision and drainage, 2.	Appendicitis	10	10	....	....	....	1	9	....	....	....
Bassini's operation, 5; Halstead's operation, 1; Ferguson's modified operation, 1.	Inguinal hernia	7	7	....	....	....	1	5	1	....	....
	Anus and rectum.										
Incision and drainage	Ischio-rectal abscess	1	1	....	....	....	....	....	....	....	1
Excision	Fistula in ano	3	3	....	....	....	....	....	....	3	....
Incision and cautery, 2; ligation, 2; ligation and excision, 4; evacuation of clot, 2.	Hemorrhoids	10	10	....	....	....	....	7	....	3	....
	Genito-urinary system.										
High excision	Varicocele	2	2	....	....	....	1	1	....	....	....
Epididymectomy	Epididymitis	7	7	....	....	....	....	7	....	....	....
Incision and drainage	Peri-urethral abscess	2	2	....	....	....	....	....	....	2	....
Circumcision	Phimosis and paraphimosis, 20; elongated prepuce and redundant prepuce, 5.	25	25	....	....	....	1	1	....	23	....
	Nervous system.										
Excision of scar tissue	Contracted scar, involving occipital nerve.	1	1	....	....	....	....	1	....	....	....
	Skin and cellular tissues.										
Incision and drainage	Abscess	40	40	....	....	....	3	3	....	12	22
Do	Nevus	1	1	....	....	....	....	....	....	1	....
Keller's operation, 10; excision, 1.	Ingrowing toe nail	11	11	....	....	....	1	....	....	10	....
	Lymphatic system.										
Excision of gland	Adenitis, sublingual, tubercular.	1	1	....	....	....	1	....	....	....	....
Incision and drainage	Adenitis, axillary, nonvenereal.	1	1	....	....	....	....	1	....	....	....

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TABLE No. 54.—*Surgical operations performed on Filipino troops, 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Lymphatic system—Cont'd.										
Incision and drainage, 2; excision of gland, 3.	Adenitis, inguinal, venereal.	5	5	....	....	....	....	4	....	1	....
Incision and curettage	Adenitis, character and site not stated.	1	1	....	....	....	....	....	....	....	1
	Muscles, tendons, fascia, ligaments, and bursæ.										
Suturing of muscle	Laceration of flexor longus pollicis.	1	1	....	....	....	....	1	....	....	....
Tenorrhaphy	Severed tendon, finger	1	1	....	....	....	....	....	....	1	....
Keller's operation	Hallux valgus	1	1	....	....	....	....	1	....	....	....
Excision	Bunion	2	2	....	....	....	1	1	....	....	....
	Bones.										
Cushing's decompression operation.	Fracture, severe, base of skull.	1	1	....	....	....	....	1	....	....	....
Removal of necrotic bone	Osteo-myelitis of tibia	1	1	....	....	....	1	....	....	....	....
	Joints.										
Incision and drainage	Abscess of hip joint and gluteal region.	1	....	....	....	[a] 1	....	1	....	....	....
	Amputations.										
Amputation of hand	Lacerated wound of hand	1	1	....	....	....	....	1	....	....	....
Amputation of finger	Fracture of finger, 1; permanent flexion of finger, 1; necrosis of thumb, 1.	3	3	....	....	....	....	2	....	1	....
Amputation, site not stated.	Malignant growth of leg	1	1	....	....	....	....	1	....	....	....
Amputation of toes	Gunshot wound of second and third toes.	1	1	....	....	....	....	....	....	1	....
	Tumors.										
Excision	Tumor, nonmalignant, nature not stated.	5	5	....	....	....	....	....	....	5	....
Total cases		153	151	....	....	2	12	49	1	67	24

[a] Died of septicemia.

PREVALENCE OF DISEASES, BY RACES, IN THE PHILIPPINES.

In making this comparison it is to be borne in mind that the native troops were serving in their own country under conditions natural to them, but inimical to our troops, and that American soldiers excused from any portion of their military duty, no matter how trivial the cause, are placed on sick report, while this is not the case with the Philippine Scouts.

The admissions and constant noneffective rates were much lower for Filipino than for American troops serving in the Philippines, the admission rate for American troops being 1,348.02 and for Filipino 937.98, but the death and discharge rates for the Filipino troops were higher than for American, the death rate for the former being 7.40 and for the latter 6.43, while the discharge rate for the former was 14.44 and for the latter 11.43.

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The following table indicates the relative susceptibility of the races to the diseases noted:

TABLE No. 55.—*Important diseases by races, Philippine Islands.*

Disease.	Admission rates.			
	American troops.			Filipino troops.
	Total.	White.	Colored.	
Venereal diseases	301.85	290.29	418.46	48.61
Dengue	130.18	138.13	50.04	12.29
Diarrhea and enteritis	59.79	63.24	25.02	38.74
Dysentery	43.06	44.50	28.47	9.50
Furuncle	35.89	37.15	23.30	18.07
Alcoholism	22.19	23.53	8.63	.19
Muscular rheumatism and myalgia	19.93	18.66	32.79	16.95
Tonsillitis	18.53	18.83	15.53	1.86
Articular rheumatism, acute and chronic	7.63	6.85	15.53	3.54
Appendicitis	7.24	7.70	2.59	.93
Typhoid fever	6.15	6.59	1.73	1.30
Measles	.16	.17	.0	.0

Disease.	Filipino troops.	American troops, Philippines.		
		Total.	White.	Colored.
Malaria	203.95	112.35	115.10	84.56
Beriberi	103.93	.16	.17	.0
Bronchitis, acute and chronic	43.40	25.38	24.47	34.51
Intestinal parasites	29.43	2.80	3.08	.0
Dhobie itch	19.00	13.55	12.32	25.89
Tuberculosis, all	5.96	5.06	4.96	6.04
Influenza	4.28	.93	1.03	.0
Pneumonia	3.54	1.17	1.20	.86
Cholera	1.68	.0	.0	.0
Smallpox	.56	.0	.0	.0

PREVALENCE OF SPECIAL DISEASES.

The rates for venereal diseases, diarrhea and enteritis, alcoholism and dengue all were higher among American troops, as was the case last year. Dysentery is this year higher among American troops. Tuberculosis is still higher among the Philippine Scouts, as is also malarial fever, beriberi, and cholera.

As has been mentioned elsewhere, the lower rate for venereal diseases among the Filipino troops is believed to be due largely to the fact that a large per cent of them are married. The excessive prevalence of malarial fever among them, the rate being 203.95 as compared with 112.35 for the American troops, may possibly be due to the same cause, as all the married men among the native troops live in their own native houses as much as possible.

There were 10 cases of Asiatic cholera with 7 deaths among the native troops. The following is an extract from the report of the chief surgeon Philippine Division, Colonel Crampton, in regard to the occurrence of cholera among the native troops and in the adjoining towns:

* * * There were 9 cases with 7 deaths among the native troops. Of these 8 cases with 5 deaths occurred in the Department of the Visayas. Camp Connell had 2 cases with 2 deaths; Tolosa, 1 case, resulting fatally; Balamban, 4 cases, 2 deaths.

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In towns adjacent to posts in that department garrisoned by native troops, the disease was epidemic in the first quarter of the year at Tacloban, Leyte, and Calbayog, Samar, and a few cases occurred at Cebu, Balamban, Iloilo, and Laoang. In the second quarter the epidemic still continued at Calbayog, became marked at Balamban, and 5 cases were reported from Iloilo. A few sporadic cases occurred at Cebu in August and September. The disease became epidemic in November, probably due to well infection after severe rainstorms. The greatest daily number of cases, 73 with 48 deaths, was reported on November 16. Up to December 19, 217 cases with 205 deaths resulted, but none among the soldiers. The remaining 2 cases among the scouts occurred at Camp Ward Cheney, Luzon, in December; both died. In the Department of Mindanao no case occurred among the troops. An epidemic appeared at Dapitan and neighboring towns in April, 1909, continuing until July, 1909, when it subsided. There were 336 known deaths.

The great prevalence of beriberi among the Philippine Scouts as compared with the almost entire absence of the disease among the American troops is explained by Capt. Edwin D. Kilbourne, of the tropical board, as follows:

Since the occupation of the Philippines by the American forces in 1898 beriberi has been endemic in the native population and several cases have been reported among the whites. Although I have examined several white soldiers and civilians said to have beriberi, I can not say that I have ever seen a genuine case in this class, and am of the opinion that the disease is extremely rare among them. In the Tropics it is easy to confuse multiple neuritis from other causes with true beriberi.

The relationship of rice to beriberi is so well established that a consideration of one must include the other, therefore a brief outline of the rice-eating habits of the inhabitants of the islands is here given. Nearly all the tribes of the Philippines are of the Malay race, and though not all are of the same religious belief, their modes of preparing rice for eating are practically identical. None, as far as I can ascertain, use parboiled rice. There are a considerable number of Chinese and a few East Indians, all of whom use polished rice, either native or imported. The latter prefer an Indian polished rice which they import in small amounts for their own consumption.

The inhabitants in the interior use irrigated rice when practicable and mountain or upland rice when water is not accessible. Those in the lower lands use, mostly, irrigated native rice. Those on the coast use irrigated native rice, or imported rice brought principally from the British and French East Indies and from Siam.

For twenty-one years preceding, and since the American occupation there has not been enough native rice produced to supply the population. Before 1877 this was not so; then the rice exported exceeded that imported. The rice used in the Philippines, as regards preparation, is of three kinds; that grown at home and pounded out by hand in large wooden mortars, that grown at home and submitted to milling of varying degrees of thoroughness, and the imported rice, all of which has been milled and polished abroad.

The first variety, home grown and hand pounded, is used in the rural districts and by about half the natives in the coast towns. The second and third varieties, polished native and imported rice, are used principally in the coast towns and their immediate vicinity. There are regions where little or no rice is consumed, as in the Batan Islands just north of Luzon. Meat and vegetables constitute the diet of the inhabitants of these islands; they have no beriberi. In the town of Aparri, 120 miles south of the Batan group, imported polished rice is found for sale in the tiendas and beriberi exists among the natives. On the contrary, in the coast towns of Casiguran and Baler, which are around the corner from Aparri on the east coast of Luzon, no imported rice was observed in the tiendas and no beriberi in the people.

In general, beriberi is found in the coast towns and along the lines of communication and in the same places polished rice is extensively eaten. At Taytay, in Rizal Province, a small town of 6,000 inhabitants, about 15 miles from Manila, beriberi is remarkably scarce, although the town is on the railroad. As a matter of fact, however, polished rice seems to be little if any used there. Samples of rice gathered at random in the tiendas of Taytay were all of the home-grown varieties and incompletely milled.

Our observations seem to prove that beriberi in the Philippines is found only where polished rice, either imported or home grown, is used, principally along the coasts or rivers. No doubt the new railway system will open up new areas of consumption of polished rice and the distribution of beriberi in the Philippine Islands be changed in the next few years.

This etiological relation of polished rice to beriberi agrees with the findings of other workers. If polished rice is a factor in the causation of beriberi, and this seems to us

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to be proven, it must be because it either conveys into the body some extraneous poisonous substance, or else is deficient in or at least fails to give to the body enough of some needed element or elements.

* * * * * * *

A deficiency in the amounts of potassium and phosphorus, or a disproportion between these elements and sodium, calcium and magnesium might well account for the production of beriberi. As in the case of rickets and scurvy, because of the intricacy of the problems involved and the large part played by the selective powers of the body tissues we may never be able to express in terms of chemical equations, the pathological processes of this disease, but I believe we do know enough of its etiology to prevent its occurrence.

By a proper diet we hope to eradicate it from the native troops. Of course, predisposing causes, such as bad ventilation, overexertion, exposure, etc., must receive their share of attention. As a result of our studies, certain changes are to be instituted in the Filipino ration. The rice is to be reduced to 16 ounces and native No. 2 rice substituted for the polished Siam rice now supplied. One and six-tenths ounces of beans are to be added. It is hoped that by these changes beriberi will disappear from the Scouts.

The following table is from a report made by Capt. William R. Eastman, Medical Corps, of an investigation made at Cotabato, Mindanao, P. I., as to the prevalence of the infection of Philippine Scouts with intestinal nematodes:

Table No. 56.

	Number.		Percentage.	
	Moros.	Filipinos.	Moros.	Filipinos.
Cases in hospital	41	30	.....	.....
Cases examined for intestinal parasites	35	22	.....	.....
Cases not examined	6	8	.....	.....
Cases with one or more parasites present	30	15	85.7	68.2
Cases negative	5	7	14.3	31.8
Species of parasites found (ova, larvæ, or adults).				
Ankylostomum duodenale	20	7	57.1	31.8
Trichocephalus trichiuris	22	9	62.8	40.9
Ascaris lumbricoides	17	4	48.6	18.2
Strongyloides stercoralis	2	1	5.7	4.5
Cases in which 3 parasites present	6	1	.....	.....
Cases in which 2 parasites present	19	4	.....	.....
Cases in which 1 parasite present	5	10	.....	.....
Cases with symptoms due to parasites, severe	2	.....	.....	.....
Cases with symptoms due to parasites, moderate	2	.....	.....	.....
Cases with symptoms due to parasites, mild	4	.....	.....	.....
Cases no symptoms	22	15	.....	.....

SANITATION IN THE PHILIPPINE ISLANDS.

The chief surgeon of the Philippines Division, Col. Louis W. Crampton, Medical Corps, in his report for the year 1909, has the following to say with regard to general sanitary questions:

Sanitary conditions in general remain good and are being steadily improved. The dry-earth system of disposal of excreta, supplemented in the larger posts by crematories, is in use throughout the division. Boiled or distilled water is used at all stations, except where artesian wells have been drilled.

Early in the year, under instructions from Washington, khaki helmets were issued for experimental purposes to all regular troops in the Philippines. The helmets were habitually worn by officers and enlisted men for all garrison duty, except target practice. The division commander directed that careful observation be made of these helmets while in use, "with a view to obtaining, if possible, sufficient data to settle definitely the question whether or not this helmet is desirable for use in our army in the Tropics in time of peace." The general consensus of opinion favors the helmet.

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My personal experience with the helmet has been very limited. With regard to its durability, I do not think it will stand as much rough usage as the campaign hat. It affords a better protection from the vertical rays of the sun, but does not afford as much protection against rain, and is much better ventilated than the hat. As to comfort, that is greatly a matter of personal opinion of the wearer, and I find the hat more comfortable. The helmet presents a better appearance and retains its shape much better than the service hat. In general I believe that if the shape of helmet were changed so as to make it give better protection to the face—by increasing the brim in front and on the sides—it would be better adapted for service in the Tropics than the service hat. Presumably the entire question will be fully reported upon by the division commander.

The subject of foot covering for Moro scouts is also a matter at present being experimented upon. The surgeon, Camp Vicars, remarks as follows:

My experience with native troops embraces my service with the Moro scouts and native soldiery of Central America. I have never seen any, except the Moro scouts, with absolutely no foot covering. The Mozo of Central America and Mexico, whose feet are certainly as tough as any in the world, and who is barefooted most of the time, uses a leather sandal called "kite" or "cyte." These they use over the lava formations and rough barren country. The soldiery use the same and when marching over sand or mud take them off and sling them from their machete belts. In fact the Mozos of the west coast of the United States of Colombia use a piece of iron beneath it at times. In all my conversations with various officers, either British, German, or American, that have had service or are serving with native soldiery, I only remember one who was in favor of the unshod soldier. The Indian of North America uses his moccasin. I know not of any human or animal being whose tissues are not vulnerable. I would earnestly suggest a suitable foot covering for Moro troops. And the results to date justify the opinion that some kind of foot covering is necessary in order to get the best service out of them.

With the gradual concentration of troops into large posts and the construction of permanent quarters of durable material, malarial infection will naturally be greatly diminished. Owing to the architecture of most of the present buildings, it is practically impossible to screen them against mosquitoes. However, every possible precaution is being taken. The subject of drainage and filling in of mosquito-breeding places is receiving appropriate attention, and careful supervision is exercised to see that the orders requiring all men to sleep under mosquito bars are complied with.

SEWERAGE.

In some of the larger posts sewers are now in use, but in the majority of all posts the dry-earth system is still in use. The substitution of McCall incinerators for the less satisfactory dry-earth system is again recommended until sewers can be installed.

TYPHOON.

On November 6, 1909, a severe typhoon occurred at Camp Bumpus, Tacloban, Leyte, causing destruction of a number of public buildings and much damage to other structures. One death (by crushing) of an enlisted man occurred and five injuries were reported.

SANITARY RECOMMENDATIONS.

The recommendations in the sanitary reports relate mainly to the necessity of establishing sewer systems, systems of pure-water supply, antimalarial and antimosquito measures, and measures to be taken to lessen the occurrence of venereal diseases.

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ORANGE-RED UNDERCLOTHING TEST.

Mention was made in the last annual report in regard to experiments that were being made to determine the value of orange-red underclothing as protection against the tropical heat and light. These experiments continued for over a year and were completed during the present year 1910. A full report was made by Capt. James D. Phalen, Medical Corps, a brief summary of which is as follows:

The test of the orange-red underwear and hat linings was undertaken as a result of recommendations by the Inspector-General of the Army. The garments were prepared at the Philadelphia depot of the Quartermaster Department and were of a deep orange-red color. The shirts averaged one-fifth of an ounce heavier than the white ones worn by the controls. The orange-red drawers were of a different type from the white ones and averaged 1½ ounces heavier. The garments faded materially on washing, especially if exposed to the sun while drying. However, the inner surface retained much of the dye, and it is not thought that the fading was so great as to destroy the value of the tests.

It had been intended to equip 1,000 men with the special underwear and an equal number of controls with white, but, owing to inability to fit sufficient men from the 5,000 suits furnished, it was found impossible to equip over 500 with the orange-red garments. The tests were carried out under the immediate supervision of the following medical officers at the posts shown after their names:

Maj. C. C. Collins.....Fort McKinley, Rizal, P. I.
First Lieut. C. L. McKinney.....Camp Stotsenburg, P. I.
First Lieut. H. A. Philips.....Camp Jossman, Guimaras, P. I.
First Lieut. C. D. Cowles, jr.....Zamboanga, Mindanao, P. I.

The men wearing the special clothing and the controls wearing white were taken from the same companies, which were equally divided in such a way as to make the two groups as nearly as possible equal in physique. Those with long tropical service or who were exceptionally weak were excluded.

The experiment was kept up during the calendar year of 1909 and a summary of the results is as follows:

1. *Weight.*—There was a loss of weight during the year in both groups of men, more marked in the mid-year (hot season) weighings, a certain amount of the mid-year loss being made up by the end of December. The loss of weight at the mid-year observavations was greater by an average of 1 pound for the orange-red group than for the control group. At the end of the period of observation there was no difference of weight in the two groups.

2. *Blood examinations.*—The results in both groups agreed in character if not in degree with those of Captain Wickline, Medical Corps, showing an increase above normal in the number of red cells and a decrease in the percentage of hemoglobin, the hemoglobin index being necessarily still more diminished. The increase of red cells and the decrease of hemoglobin were both more marked in the orange-red group than in the controls. Both this change and the greater loss in weight referred to above, as well as the lowered blood pressure mentioned below, may have been due to increased perspiration on the part of the orange-red group during the hot season.

3. *Blood pressure.*—The blood pressure of both groups fell during the hot season, the fall being slightly more marked in the orange-red group. In December the pressure in both groups returned to practically the original point.

4. Pulse, temperature, and respiration were taken after drill or other exercise, 8,000 observations being made. Averages for 1,500 observations are shown in the following table:

	Temperature.	Pulse.	Respiration.
Orange-red group	98.792	91.2	22.3
White group	98.780	90.9	21.3

It will be seen that each is higher for the orange-red group than for the controls, but the differences are very slight.

5. Comparative sick reports showed insignificant differences. The admissions per 1,000 and the days lost per 1,000 were, respectively, 508 and 3,526 for the special group,

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and 478 and 3,522 for the white group. The admissions per 1,000 for heat exhaustion were higher for the orange-red group, 27, as compared with 21 for the controls.

6. *Strength tests.*—Strength tests on men from the two groups showed nothing of value.

7. *Symptoms referable to climate.*—The two groups suffered about equally from these except as regards excessive perspiration, which was much more complained of by the men of the orange-red group.

8. *Impressions of the wearer.*—Sixteen men preferred the orange-red garments, 54 had no choice between the colors, and the remainder, nearly 400, expressed an opinion adverse to the colored underwear; 50 said it was hotter and 104 others stated that it caused more profuse perspiration. No organization commander saw any benefit from its use, and of 16 officers who used it for a time only 1 expressed approval.

9. *Photographic experiments.*—Experiments showed that the campaign hat was as impervious to the rays affecting the photographic plate without the orange lining as it was with it. The lining added materially to the opacity of the khaki cap. The differences in penetrability by actinic rays between a light skin and a dark Filipino were slight and were entirely neutralized by one layer of khaki uniform cloth. The pigment of the darkest skin was found nowhere near as protective as was the orange-red garment.

10. *Temperature experiments.*—Extensive experiments, both on and off the body, showed that when exposed to the sun the temperature was greater beneath the orange-red material than it was beneath similar white material. The same was found to be true when both materials were overlaid by khaki cloth.

11. *Moist heat experiments.*—These were carried out at Los Baños in a room ranging from 90° to 98°F., and with the atmosphere saturated with moisture. Men remaining four hours in this room lost greatly in weight and had a marked rise in temperature with acceleration of pulse and respiration and a fall in blood pressure.

From the results of the whole test and the experiments the conclusion was reached that the physiological effects of the climate in the Philippines can be and probably are produced without the aid of the sun's actinic rays, and no evidence was found that the sun's rays alone could or did produce these effects. No benefits appeared to result from wearing the orange-red garments. On the contrary, the test underclothing added materially to the burden of heat which the system was compelled to endure and which is probably the chief cause of tropical deterioration. Even if the actinic rays have any influence whatever on the system, it is believed that they are sufficiently excluded by the khaki uniform and the campaign hat.

TRANSPORTS.

SANITARY CONDITION.

The sanitary condition of the various transports and the accommodations provided for troops on them has been in the main satisfactory, and the majority of the sanitary faults, which exist or have arisen from time to time have been corrected with promptness.

Outbreaks of measles occurred on the *Sheridan* and *Thomas*. On the *Sheridan* there were 10 cases and on the *Thomas* 4 cases. These cases were promptly isolated as they occurred and the epidemic controlled.

During the early part of the year there was an outbreak of variola on the *Burnside*, 6 cases developing, with 1 death. Prompt measures were taken to isolate the cases as they developed, to vaccinate the crew, and to fumigate the quarters. However, it was several weeks between the time of the appearance of the first case and the last one A case of variola appeared on the *Sherman* about June 5.

On March 19, 1910, the Twenty-third Infantry embarked on the *Sheridan* at Parang, P. I. An epidemic of typhoid fever had been in progress there since October, 1909. Several suspected cases occurred before leaving Manila and 3 on the voyage to San Francisco, 1 of which was a typical clinical case.

During the voyage of the *Kilpatrick* from Manila to New York, after leaving Colombo, an extensive epidemic of gastro-enteritis

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developed, about 250 cases in all. There was also a similar epidemic on the *Sherman* May 30 to June 2, 1910, with about the same number of cases.

BOARD FOR THE STUDY OF TROPICAL DISEASES.

During the year 1909 this board was composed of Capt. James M. Phalen, Capt. Edwin D. Kilbourne, March 10 to December 31, 1909; Lieut. Henry J. Nichols, January 1 to July 15, 1909; Maj. Weston P. Chamberlain reported for duty August 31, 1909, but was on leave from September 10, 1909, until January 8, 1910. Captain Phalen was relieved March 23 by Capt. Horace D. Bloombergh.

The experiments upon the subject of the orange-red underclothing which lasted more than a year were completed and the summary of the findings is given under the subject of "Sanitation in the Philippine Islands."

TYPHOID FEVER.

A large amount of work was done in typhoid fever and especial mention is made of the epidemic at Camp Eldridge, Laguna, and at Ludlow Barracks, Parang, under the subject of "Prevalence of special diseases in the Philippines."

BERIBERI.

A group of Englishmen, and especially Fraser, working in the Malay Peninsula, arrived at the conclusion that the beriberi which is quite prevalent in the peninsula, while quite rare in India, was due to difference in the rice in the diet; in India, the cured rice is used, while in the Malay Peninsula the uncured rice is used. In curing rice the ripe grains still in husks are soaked in water a number of hours and then boiled or steamed a number of minutes. The rice is than dried or husked. The covering loosens the husk so that it comes off easily, leaving the grains intact and darkened, made translucent and semi-gelatinous. When rice is husked, without previous treatment, as the husk is firmly adherent to the grain, considerable violence is necessary to remove all trace of it, and the result is that the outer layers of the grain containing the proteid and fatty element are partly torn and the grains are more or less fractured. In the Philippines the No. 1 grade is a white, well-polished rice with practically all the pericarp and very likely most of the aleurone layer milled off, and therefore no better than the Saigon (choice) rice, or uncured white rice. The No. 2 grade is an imperfectly milled rice to which most of the pericarp still adheres. This corresponds to the cured rice used in India. This latter variety is approved by the board for issue to the Philippine Scouts. Potassium and phosphorus have been found deficient in the food of the organizations having beriberi, the deficiency being more marked in the potassium.

All the papers on beriberi read before the Far Eastern Association of Tropical Medicine at the recent meeting in Manila attributed the occurrence of the disease to the use of overmilled or polished rice (i. e., rice deprived of its pericarp and perhaps its aleurone layer).

Fraser and Stanton were able to produce a polyneuritis in fowls by feeding uncured (white, polished) rice, and to cure the same whenever

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desired by using cured (unpolished) rice, or by a mixture of the millings and the uncured rice. They also prevented beriberi in the natives of the Malay Peninsula by using the cured (unpolished) rice or by combining the polished rice and the millings in proper proportion.

Two readers considered that the deficiency of phosphorus, due to removing the pericarp, caused the disease. As a result of the recommendation of the board a change has been made in the Filipino ration. The issue of rice is limited to 16 ounces instead of 20 as heretofore, substituting 1.5 ounces of beans for the rice thus cut off. Savings on fresh meat have been forbidden. The subsistence department will supply native grown rice, No. 2 grade, instead of the Saigon type, as soon as the stock on hand has become exhausted, about August 1, 1910.

WORK AT TAYTAY.

During March, April, May, and June, 1909, a medical survey of a typical Filipino town was made. The survey was organized by Doctor Freer, director of the bureau of science, and Dr. P. E. Garrison, U. S. Navy. Its permanent personnel was Doctor Garrison, Dr. Paul Clements, of the bureau of health, Lieut. H. J. Nichols, of the tropical board, and a number of recent graduates and students of the Philippine Medical School.

Taytay is a town of about 6,000, situated in Rizal Province. The important findings are the following:

1. The water supply is bad; bacillus coli and amœbæ were found in all the sources of supply except one small spring. Artesian water is probably obtainable.
2. The disposal of excreta amounts to little more than ridding the body of them. Over one-half of the houses have absolutely no provision for this purpose and in only 8 per cent is the arrangement at all satisfactory. The pit system with rigid inspection by the municipal physician and police seems to be the most feasible remedy at present.
3. The insignificance of hook-worm infection in this representative area. Only 10 per cent of 1,000 persons of the general population were found infected and no clinical cases were found. Over 80 per cent have whip and round worms. Amœbiasis affected only about 5 per cent.
4. The existence of typhoid fever with no history of recent importations was clearly demonstrated.
5. Tuberculosis affects about 1 per cent of the population with a mortality of about 20 per year. No place infections were found.
6. Malaria prevails along the banks of the streams to the extent of 1 per cent of the general population.
7. Yaws occur in small groups of houses indicating contact infection.
8. Goitre is present to a considerable extent in noncretaceous soil.
9. Beriberi and venereal diseases were conspicuous by their sparcity. All the cases of beriberi were "rudimentary," and even this diagnosis might be questioned.
10. The amount of filariasis and elephantiasis agrees with our estimate for Tagalogs made on the basis of the examination of the scouts.

AN EPIDEMIC OF CONJUNCTIVITIS AMONG FILIPINOS.

An epidemic of conjunctivitis occurred among the native workmen engaged in the erection of fortifications on Corregidor and Carabao islands. On each island about 2,000 natives were employed, one-half of this number on Corregidor being convicts from Bilibid. It was estimated that on each island there were about 500 cases during the last six months of 1909. A number of cases were examined and found to be caused by the Koch-Weeks bacillus.

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The spread of the different varieties of infectious conjunctivitis is thought to be brought about in the following ways:

1. Direct contact, as hands, towels, handkerchiefs, etc.
2. Through the agency of flies whose feet become contaminated from the muco-purulent discharge.
3. By dust containing dried discharges.
4. By droplets discharged in sneezing, nose blowing, coughing, and speaking, the infected tears having passed into the mouth and nasal cavities through the lachrymal ducts.

The Koch-Weeks bacillus is easily killed by drying, so it is probable that dust has little to do with the spread of this form of conjunctivitis. Flies were scarce at Corregidor and Carabao, as is generally the case throughout the Philippines. In this epidemic there was excellent opportunity for infection by direct contact and by droplets, and it is probable that both were concerned in the dissemination of the germ.

BACILLARY DYSENTERY.

Dysentery of the bacillary type was more prevalent throughout the Philippines during the spring, summer, and early autumn of 1909 than for many years previously, assuming in many localities the proportions of epidemics. The disease has affected both the native population and Americans, the military service being severely affected in one post.

TRYPANOSOMIASIS OF BATS.

Trypanasomes were found present in the blood of 8 bats out of 45 examined. The board was unable to determine the species.

EFFECTS OF TROPICAL CONDITIONS ON BLONDS AND BRUNETTES.

An investigation has been started with a view to proving or disproving the theory that the actinic rays of the sun produce more marked and injurious effects on blonds than they do on brunettes.

DIPHTHERIA.

During the quarter ending March 31, 1910, in Manila 9 cases with evidence of throat disease were examined, from 3 of whom positive cultures for diphtheria bacilli were obtained. Ten contacts were also examined and positive cultures obtained from 2.

VINCENT'S ANGINA.

Six cases of ulcero-membraneous angina were reported, which were believed by the board to be the first reported from the Philippines. In each of these cases the causative organism was found, a slightly fusiform bacillus. Spirochoetes were also found in these cases.

HOOK-WORM INFECTION.

Examination of Filipino adults at Bilibid prison and in scout organizations has shown infection rates ranging from 50 to 60 per cent, but among 9,885 members of the general population examined by

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the bureau of health and drawn from widely separated regions in Luzon the rate has varied from 11.1 per cent to 16.1 per cent. The percentage of infection was highest in the male, next in the female, and least in the children. In one series of 2,500 in the Cagayan Valley the rates were: Males, 21 per cent; females, 9 per cent; children, 2 per cent. Among adult male Igorots, in the mountainous province of Benguet the board found about 25 per cent infected with uncinaria. In the opinion of the board this disease rarely causes notable disability among Filipinos and is apparently of minor economic importance in the islands, contrasting sharply with conditions in Porto Rico.

DENTAL AND ORAL DISEASES.

The number of dental operations during the year was 47,378, being an increase over the preceding year, which was 45,841. The ratio per 1,000 of mean strength was, however, less, being 567.33, as compared with 700.87. This, however, can not be taken as a measure of the dental diseases in the army, but represents what the number of dentists available are able to accomplish. The number should be increased so that each man in the army could receive at least one treatment yearly.

The summary of the work of contract dental surgeons is contained in Table No. 57.

TABLE No. 57.

DENTAL AND ORAL DISEASES.

	Cases admitted to treatment.		Operations performed.	
	Number.	Ratio.	Number.	Ratio.
United States (continental), exclusive of Alaska	24,754	413.73	25,949	433.70
Philippine Islands	18,062	946.55	18,289	958.44
Alaska	743	663.39	565	504.46
Cuba	405	633.80	413	646.32
Hawaii	1,738	1,641.17	2,162	2,041.55
Total	45,702	547.26	47,378	567.33

DENTAL CARIES—NUMBER OF TEETH TREATED.

	White troops.		Colored troops.		Filipino troops.		Total.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
United States (continental), exclusive of Alaska	14,906	257.57	281	143.29			15,187	253.83
Philippine Islands	8,573	662.89	632	545.30	1,068	198.92	10,273	538.36
Alaska	562	501.79					562	501.79
Cuba	303	474.18					303	474.18
Hawaii	1,107	1,045.33					1,107	1,045.33
Total	25,451	340.45	913	269.80	1,068	198.92	27,432	328.49

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MEDICAL DEPARTMENT.

The Medical Department consists of a Medical Corps, a Medical Reserve Corps, the Hospital Corps, the Army Nurse Corps, and the Dental Corps.

MEDICAL CORPS.

Authorized strength June 30, 1909	390
Increase January 1, 1910, by act of April 23, 1908	34
Authorized strength June 30, 1910	424
In service June 30, 1909	283
Appointed during year	74
	357
Losses during year	12
In service June 30, 1910	345

On October 1, 1909, 58 candidates who had passed the preliminary examination for appointment in the Medical Corps reported in Washington to take the course of instruction at the Army Medical School. Fifty-three students successfully completed the course of instruction at the school and were graduated May 31, 1910. Fifty of the graduates were recommended for appointment in the Medical Corps of the Army.

Losses during the fiscal year.

	Brigadier-generals.	Colonels.	Lieutenant-colonels.	Majors.	Captains.	First lieutenants.	Total.
Retired		2		6	1		9
Resigned							
Discharged					1	1	2
Died			1				1
Aggregate		2	1	6	2	1	12

PROMOTIONS DURING THE FISCAL YEAR.

The following promotions were made: Four lieutenant-colonels to be colonels; 8 majors to be lieutenant-colonels; 28 captains to be majors; 19 lieutenants to be captains.

The good effect of the increased inducements to enter the Medical Corps provided by the medical department bill approved April 23, 1908, has been apparent during the past year. A great interest in the Medical Corps has been aroused in the profession throughout the United States, as is evidenced by the numerous inquiries with reference to the service in the Medical Corps, and the great number of applicants appearing for the preliminary examinations.

Beginning with November, 1909, preliminary examinations for appointment to the corps have been held the second Monday in each month at San Francisco, Cal., Fort Sheridan, Ill., and Washington, D. C. During the fiscal year ending June 30, 1910, 78 applicants successfully passed the preliminary examinations. Of this number 44 attended the session of the Army Medical School which ended May 31, 1910, leaving 34 who will attend the next session of the school. A preliminary examination will be held on the 18th of July, 1910, at

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various army posts throughout the United States, to which at least 130 candidates will be invited to appear. The last examination before the opening of the school will be held on Tuesday, September 6, 1910, and a goodly number of applicants have already signified their intention of taking the examination at this time.

Another evidence of the encouragement given the Medical Corps by the act of April 23, 1908, is the fact that during the year the corps has had no loss by resignation.

Great interest has been manifested in the work of the Medical Department by the members of the Medical Reserve Corps on the inactive list. Several applications have been made to be called into active duty during the summer maneuvers, and I am very glad indeed to note that it has been found possible to comply with this request in one case, thereby establishing a precedent so that in the future medical reserve corps officers can be called into active service during maneuvers, so they can become familiar with the duties they will have to perform when called into active service in an emergency. Besides the official applications that have been made for this special duty, numerous inquiries have been received in the office as to whether it was possible to be ordered to the maneuvers. Until now all these inquiries have been answered in the negative. I consider it of the greatest importance that the policy of calling reserve officers into service for short periods of time at concentration camps, etc., shall be formally established, as it is certainly as of great importance that the medical officers who will be called into service in time of war shall be educated in time of peace, as it is to give similar education to the militia. It is believed that the intention of the act of April 23, 1908, will not be fulfilled unless this policy is carried out.

The method of conducting the examinations of medical officers as authorized by the reorganization bill of 1908, has proved an unqualified success. To date, 12 medical officers have been found disqualified physically, and 9 medical officers have been found professionally disqualified, making a total of 21 officers separated from the service. Two majors have been placed on the retired list after a second examination and one major by reason of physical disqualification. The papers of another major who failed to qualify before a board, are now in the hands of a board of review.

It may be that the examination to determine an officer's fitness for promotion is not a perfect test, but it is the best that has been yet devised, and I believe that the methods of carrying on examinations for promotion of medical officers is by far the best ever introduced into the army.

MEDICAL RESERVE CORPS.

On roster June 30, 1909		364
Appointed during the year		153
		517
Losses:		
Resigned	4	
Discharged	18	
Died	1	
Commissions vacated	74	
		97
On roster June 30, 1910		420

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The death was John J. Archinard, December 27, 1909 (on inactive list).

Of the 420 on the roster June 30, 1910, 175 were on active duty, and 245 on the inactive list.

On active duty June 30, 1909		184
Ordered to active duty during the year		96
		280
Relieved from active duty	13	
Commissions vacated	74	
Honorably discharged	14	
Resigned	4	
		105
On active duty, June 30, 1910		175

As noted above, 53 medical reserve corps officers successfully completed the course of study at the Army Medical School and 50 were found qualified for appointment in the Medical Corps. The Medical Reserve Corps has now passed the experimental stage and it is now my purpose to maintain the examinations for appointment in that corps at a standard equal to that required by the licensing boards of the states having the highest standard of medical education.

CONTRACT SURGEONS.

In service June 30, 1909	14
Contracts made during the year	9
	23
Contracts annulled during the year	10
Contracts in force June 30, 1910	13

Of these thirteen contracts, four are temporary and nine are on duty at arsenals, headquarters of military departments, and remount depots, at pay ranging from $75 to $125 per month. Two of the latter are on the inactive list of the Medical Reserve Corps.

DENTAL SURGEONS.

Contracts authorized and in service June 30, 1909	31
Contracts made	3
	34
Contracts annulled	3
Contracts in force June 30, 1910	31

Attention is invited to my report of last year with reference to the inadequacy of the number of dental surgeons now authorized by law if a serious attempt is to be made to furnish dental service for the army.

Since the employment of dentists was authorized in the act of February 2, 1901, numerous bills have been introduced in Congress looking to the permanent organization of a Dental Corps of the Army, giving the members of this corps various grades of rank. All bills introduced to date have been objectionable in one respect or another. During the past winter this office was called upon to give an opinion as to the needs of the army with reference to a permanent dental organization. Before giving an opinion on the subject all the claims and recommendations that had been made to date for the improve-

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ment of the dental service were taken into consideration, and it is believed the bill proposed by this office for the commissioning of dental surgeons will meet the requirements in every respect and give to the army an efficient dental service.

The bill submitted recommends that there shall be attached to the Medical Department a dental corps which shall be composed of dental surgeons and acting dental surgeons; that the original appointments to the dental corps shall have the same official status, pay, and allowance as the dental surgeons now authorized by law, and that after three years such acting dental surgeons shall be eligible to appointment in the regular dental corps, after passing in a satisfactory manner an examination prescribed by the Surgeon-General of the Army. After passing this examination an acting dental surgeon is commissioned in the dental corps with the grade of first lieutenant, and shall have rank immediately below all officers of the Medical Reserve Corps, and the pay and allowances of dental surgeons shall be the same as those of first lieutenants, not mounted, including the right to retirement on account of age and disability; and the time served as dental surgeons, acting dental surgeons, or contract dental surgeons shall be reckoned in computing the increase service pay of such as are commissioned in the regular dental corps. The recommendation also limits the number of dental surgeons to 60.

The bill proposed by this office was accepted by the representative of the National Dental Association, and at the time it was recommended to the Secretary of War the then Surgeon-General of the Navy agreed to support a similar proposition for the organization of a dental corps in the navy.

The favorable consideration of the Secretary of War is requested for this bill, which is believed to contain everything necessary for the organization of an efficient dental service.

HOSPITAL CORPS.

Strength June 30, 1909:

Sergeants, first class	299
Sergeants	290
Corporals	18
Acting cooks	151
Privates, first class	1,358
Privates	1,345
Total	3,461

Gain July 1, 1909, to June 30, 1910:

By enlistment	592
By transfer	826
Return from desertion	74

Loss during same period:

By discharge by expiration of term of service	908
By discharge by order	226
By discharge, sentence general court-martial	106
By discharge, surgeon's certificate of disability	76
By transfer to line	32
By retirement	25
By death due to disease	8
By death due to accident	3
Suicide	3
Dropped	3
Deserted	155

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In service June 30, 1910:

Sergeants, first class	274
Sergeants	339
Corporals	44
Acting cooks	189
Privates, first class	1,295
Privates	1,267
	3,408

In order to be prepared to fill the vacancies in the grade of sergeant, first class, due to the usual casualties of the service, and to meet the needs of the Army, the examinations required by section 4 of the act of Congress approved March 1, 1887, were held in the military departments in the United States in February, and in the Philippines Division in March, 1910.

Of the 112 applications received from sergeants in the United States, 96 were authorized to take the examination. Of these 96, 18 were not recommended by the local boards, and 78 replies of the candidates are now being examined and rated in this office.

In the Philippines Division 17 sergeants were examined. Three of these were not recommended by the local board, and the replies of 14 are now being examined and rated.

The examination is competitive, and the subjects are: Arithmetic, materia medica, pharmacy, care of sick and war management, minor surgery and first aid, and elementary hygiene.

In the various military departments and also at independent stations frequent examinations were held for promotion to the grade of sergeant, and the 50 additional sergeants allowed in the army appropriation act for 1909 and 1910 were filled by the candidates who received the passing mark.

The 30 additional corporals provided for in the same act have also been appointed during the fiscal year.

The total number of sergeants appointed during the year was 130.

Particular attention is invited to the fact that the present authorized strength of the Hospital Corps (3,500) is inadequate for the needs of the service, and that the department is unable to furnish the men allowed by Army Regulations for posts and independent commands.

This matter was fully discussed in my last annual report (1908–9); the same conditions exist now, and the views expressed and recommendations for relief made then could only be reiterated now. A letter dated July 13, 1910, was addressed to The Adjutant-General on this subject.

The additional work assigned to the Hospital Corps during the last few years has made a fair distribution of its members a matter of considerable difficulty, inasmuch as the department is enjoined to remain strictly within the authorized strength. Under these circumstances it soon became apparent that a temporary reduction in the regulation allowance must be made. The latter course was adopted in October, 1909, when the Secretary of War authorized the reduction of 8 per cent for the different military departments.

The companies of instruction, Hospital Corps, have continued to do excellent work. At my last report Company C, Hospital Corps, was occupying temporarily barracks at Fort Niagara, N. Y. The permanent barrack for this company was completed at the Walter Reed General Hospital, Tacoma Park, D. C., this spring and the company was transferred to its permanent station April 24, 1910.

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During the summer of 1909, Company A, Hospital Corps, attended the camp of instruction for militia officers at Sparta, Wis., during July and August, and was afterwards present at the military tournament at Des Moines, Iowa, the 1st of October. One-half of the company arrived at Camp J. M. Dickinson, Grant Park, Chicago, Ill., June 28, 1910, and established a field hospital same date.

Company B, Hospital Corps, was assigned to the camp of instruction for militia officers at the Presidio of San Francisco, Cal., during July and August, 1909, and later returned to its quarters.

Company C, Hospital Corps, left Fort Niagara, N. Y., on July 1 for duty at the military tournament at Toledo, Ohio (Camp William H. Taft). This company at a later date was present at the camp of instruction for militia officers at Antietam, Md., from July 12 to August 14, 1909, on which date it left Antietam for Camp Perry, Ohio, to be present at the rifle test. On September 27 this company attended the military tournament at Albany, N. Y. (Camp Robert Shaw Oliver), and returned to Fort Niagara October 13, 1909. One-half of the company left post June 16, 1910, to participate in the military tournament at Nashville, Tenn. The other half left post June 28, 1910, for duty at camp of instruction, Gettysburg, Pa., arriving there the same date.

Companies A and C are now housed in barracks specially built for company work at Fort D. A. Russell, Wyo., and Walter Reed General Hospital, Takoma Park, D. C., respectively, but the barracks now occupied by Company B on the Presidio reservation is entirely unsatisfactory, and this company can not be expected to perform its full measure of work effectively until suitable barracks have been provided for it. An estimate has been made for the construction of suitable barracks, and it is hoped it will be allowed.

The composition of the corps is as follows:

Sergeants, first class	300
Sergeants	350
Corporals	50
Privates	[a] 2,800
Total	3,500

ARMY NURSE CORPS.

Number of applicants		519
Appointments:		
New	33	
Reappointed	4	
		37
Discharges		32
Number in the Corps on June 30, 1910		96
Serving as follows:		
San Francisco, Cal	41	
Fort Bayard, N. Mex	18	
Washington, D. C., attending surgeon's office	2	
		61
Philippines Division:		
Division Hospital, Manila	20	
Zamboanga, Mindanao	4	
Camp Keithley, Mindanao	3	
Fort William McKinley, Rizal	4	
En route to P. I	2	
En route to United States	2	
		35
		96

[a] About 190 of the 2,800 are acting cooks.

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The new superintendent of the Army Nurse Corps, Miss Jane A. Delano, reported for duty on September 10, 1909. Previous to her appointment Miss Delano had been the superintendent of Bellevue and allied Hospitals of New York City, and is the president of the Associated Alumnæ of Nurses of the United States. She therefore brought to her new office a fine executive training and a wide experience with the nursing organizations of the country. In addition to her work as superintendent of the Nurse Corps, Miss Delano is the chairman of the Red Cross Nursing Service of the American National Red Cross, and in this capacity has done very valuable work in enrolling nurses for active service in case of emergency. The Reserve Nurse Corps authorized by the act of February 2, 1901, has not proved attractive to the nursing profession, and the Red Cross nurses now being enrolled will be an effective substitute for it as a reserve of nurses for the Medical Department, if a war should occur.

Certain defects existed in the act organizing the nurse corps of the army which it was necessary to correct. The Secretary of War approved my recommendation for the introduction of a bill into Congress for the reorganization of the corps to correct these defects. It was not practicable to have the last Congress pass the bill presented, but a proviso was added to the army appropriation bill for the fiscal year ending June 30, 1911, embodying all the essential features in the original bill. The changes authorized by this proviso increased the pay of nurses from $40 to $50 per month while on duty in the United States and gave an addition of $10 per month when serving beyond the limits of the United States. It also provided that nurses should receive $55 per month after three years of service; $60 after six years of service; and $65 after nine years of service. The changes authorized also provided for cumulative leave for nurses. With these liberal allowances it is believed that the Army Nurse Corps is now upon a permanent and satisfactory basis. The favorable influence of this legislation was promptly felt in that one hundred nurses—the number authorized by the Secretary of War—were in service on June 1, 1910, the first time the Nurse Corps had had its maximum number since August 1, 1907.

ARMY MEDICAL SCHOOL.

The fourteenth session began October 4, 1909, and closed May 31, 1910.

The number of accepted candidates appointed first lieutenants in the Medical Reserve Corps and admitted to the school was 58, and of medical officers of the militia 1.

The continued increase in the number of student officers as compared to former years is due no doubt to the recent legislation which makes the career of the army surgeon more attractive.

In this connection I desire to state that the class of men who come up and who are finally successful in passing the examination for entrance to the school is better drilled in medicine than formerly. This fact, in my opinion, marks one of the evidences of the great advance which the medical schools of this country have made in recent years in perfecting their methods of teaching.

The equipment of the school, especially in the chemical and clinical microscopy laboratories, has been constantly added to, so that it now

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surpasses the outlay usually found in the best of our universities. The work conducted in the Army Medical School is of a postgraduate character, and the aim of the teaching staff has been directed toward a selection of the equipment for the needs of advanced workers in scientific medicine.

There was but one militia officer under instruction at the school this year—Capt. J. M. Stanley, of the Mississippi National Guard—who graduated with good marks. As long as the classes continue as large as they are at present, it is better that the number of students from the militia branch be restricted, because the facilities for instruction are now limited to about 60 men.

Fifty-three candidates completed the course, passed their final examination successfully, and were awarded certificates of proficiency; 1 failed to pass the examination.

The following table shows the subjects taught, the hours of instruction in each subject, and the names of the instructors:

No.	Hours of instruction.	Subject.	Instructor.	Maximum.	Minimum.
1	112	Duties of medical officers, medical department administration, and customs of the service.	Lieut. Col. Wm. H. Arthur. Maj. Chas. R. Reynolds....	1,000	800
2	280	Clinical microscopy and bacteriology.	Maj. F. F. Russell..... Capt. Chas. F. Craig.....	900	720
3	25	Military hygiene	Maj. F. A. Winter.....	800	640
4	18	Military surgery.....	Col. L. A. La Garde.....	800	640
5	24	Military medicine and tropical medicine.	Lieut. Col. W. D. McCaw..	800	640
6	170	Sanitary chemistry.....	Maj. C. R. Darnall.....	600	480
7	58	Hospital corps drill and field work..	Maj. Chas. R. Reynolds....	500	400
8	24	Operative surgery.....	Capt. H. F. Pipes.....	400	320
9	52	Ophthalmology and optometry.....	Lieut. Col. W. D. Crosby..	400	320
10	10	Röntgen-ray work.....	Capt. H. F. Pipes.....	300	240

In addition to the above, the following instruction was also given, viz:

Twenty hours in equitation at Fort Myer, Va., by Second Lieut. Adna R. Chaffee, Fifteenth Cavalry.

A series of 6 lectures on military law, by Gen. George B. Davis, Judge-Advocate-General, U. S. Army, assisted by Lieut. Col. George M. Dunn, Judge-Advocate-General's Department.

A series of 10 lectures on psychiatry at the Government Hospital for the Insane, by Dr. W. A. White, superintendent, Government Hospital for the Insane, and Capt. Robert L. Richards, Medical Corps.

Two lectures on "Personal experiences during the Spanish-American war," by Prof. Chas. B. G. de Nancrede, University of Michigan.

A lecture on "Methods of wound treatment and sterilization appropriate for use in the field," by Dr. Alexius McGlannan.

A lecture on "Sanitary work in Cuba," by Lieut. Col. J. R. Kean, Medical Corps.

The final examination ended May 18, 1910. The marks obtained in each subject and the final aggregate are shown in the merit roll given below.

Five of the student candidates have obtained a general average of more than 90 per cent of all possible marks and are borne on the roll as "Proficient with honor."

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The Hoff memorial medal for the highest standing in class was awarded to First Lieut. Henry Beeuwkes, Medical Reserve Corps.

The conduct and deportment of members of the class were at all times excellent.

The class was so much larger than usual, and the amount of clinical material being limited, authority was obtained to dispense this year with the supplementary clinical examination which has been held at the Soldiers' Home Hospital in previous years.

Fifty of the student officers were found to possess satisfactory aptitude for the military service, and that number was accordingly recommended for appointment in the Medical Corps.

The closing exercises were held in the Continental Hall, Daughters of the American Revolution, on May 31, 1910, the address to the class being delivered by Prof. Victor C. Vaughan, of the University of Michigan. The diplomas were awarded by the honorable the Secretary of War, and the Hoff memorial medal was presented by the Surgeon-General of the Army.

The Army Medical School has recently moved from its old quarters in the Army Medical Museum and Library Building in Washington to the new quarters in the large building known formerly as the Builder's Exchange, 721 Thirteenth street NW., between G and H streets. The school will occupy five floors of the building, beginning on the second floor, which will have the administrative offices, the lecture hall, and the locker and dark rooms. The chief feature of the floor above, the third story, is the chemical laboratory. On the fourth floor is the bacteriological laboratory. About 60 students can work at once in each of these laboratories. Four days will be given to bacteriological work and two to chemistry laboratory work. The fifth floor will be given over to the bacteriological laboratory under the direction of Maj. F. F. Russell. Here five rooms will be used by him and his assistants and clerks. On the sixth floor is the room to be devoted to operative surgery. On this floor, too, will be the X-ray apparatus.

Relative proficiency of the graduates of the Army Medical School, session 1909–10.

First lieutenants, Medical Reserve Corps.	Aggregate (maximum 7,000, minimum 5,600).	Remarks.
William H. Allen	6,329	Proficient with honor.
Thomas C. Austin	6,059	
John D. Aydelotte	6,159	
Joseph E. Bastion	6,121	
Harry R. Beery	6,119	
Henry Beeuwkes	6,401	Proficient with honor (medalist).
Albert S. Bowen	6,307	Proficient with honor.
John A. Burket	6,079	
William B. Carr	6,118	
Joseph Casper	6,242	
George W. Cook	6,069	
Alexander T. Cooper	6,125	
Wibb E. Cooper	6,009	
Wayne H. Crum	6,071	
Taylor E. Darby	6,102	
Arthur O. Davis	5,936	
William Cole Davis	5,719	
Charles E. Demmer	6,238	
Ralph G. De Voe	5,883	
George M. Edwards	6,113	
Harry B. Etter	5,682	
Thomas L. Ferenbaugh	5,842	

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Relative proficiency of the graduates of the Army Medical School, session of 1909–10—Con.

First lieutenants, Medical Reserve Corps.	Aggregate (maximum 7,000, minimum 5,000).	Remarks
Owen C. Fisk	5,896	
John P. Fletcher	6,154	
George B. Foster	6,366	Proficient with honor.
James S. Fox	6,070	
Ernest R. Gentry	6,273	
Julian M. Gillespie	5,692	
Charles W. Haverkampf	6,212	
Roy C. Heflebower	6,375	Do.
Felix R. Hill	6,021	
Carl E. Holmberg	6,153	
Robert W. Holmes	5,790	
Glenn I. Jones	6,135	
Edgar C. Jones	6,008	
Thomas H. Johnson	6,260	
Charles T. King	6,204	
Solomon P. Klotz	5,942	
Howard A. Knox	5,866	
Floyd Kramer	5,855	
Edward D. Kremers	6,206	
Larry B. McAfee	6,069	
Everett S. McClelland	5,648	
Condon C. McCornack	6,173	
James R. Mount	6,172	
Edward L. Napier	5,958	
Royal Reynolds	6,034	
Adam E. Schlanser	6,155	
William L. Sheep	5,851	
William H. Thearle	6,222	
Mark D. Weed	6,182	
Edward M. Welles	6,002	
Thomas D. Woodson	6,183	
Capt. J. M. Stanley, Mississippi National Guard	5,686	

GENERAL HOSPITALS.

SAN FRANCISCO, CAL.

This hospital is used as a base hospital for the Philippines and Hawaii and is the largest general hospital, excluding the hospital for tuberculosis at Fort Bayard.

The number admitted during the year, including civilians and military convicts, was 3,003, being an increase of 710 over the preceding year.

Of this number 67 were officers, 2,575 enlisted men, and 353 civilians, including members of officers' families, and 8 military convicts.

The daily average of patients for the year was 270.9. There were 38 deaths during the year, the causes being as follows:

Deaths, causes of, 1909.

1. General diseases:	
(*a*) Infectious—	
Pneumonia, lobar	3
Broncho-pneumonia	2
Acute septicemia and toxemia	2
Puerperal septicemia	1
Tuberculosis—	
Pulmonary	3
General	1
(*b*) Other general diseases—	
Carcinoma of lip	1
Carcinoma of stomach	2
Pernicious anemia	1
General debility and atrophy	1
	17

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2. Diseases of the nervous system:		
Meningitis, cerebro-spinal	1	
Softening of the brain	1	
		2
3. Diseases of the circulatory system:		
Endocarditis—		
Acute, ulcerative	1	
Chronic, mitral	2	
Organic heart disease	1	
Aneurysm, thoracic	1	
Heart failure—		
Due to mitral regurgitation	1	
Due to acute alcoholism	1	
		7
4. Diseases of the respiratory system:		
Edema of both lungs		1
5. Diseases of the digestive system:		
Intestinal obstruction	1	
Hepatic abscess	1	
Appendicitis, acute, gangrenous	1	
		3
6. Diseases of the genito-urinary system (nonvenereal):		
Nephritis—		
Acute	1	
Chronic	2	
		3
7. Old age:		
Senile debility		2
8. External causes:		
Gunshot wound—		
Accidental	1	
Homicidal	1	
Suicidal	1	
		3
Total deaths, 1909		38

There were 214 discharges on certificate of disability, the largest number from any one cause being 13 for insanity and the next highest being 12 for neurasthenia.

The following table shows the movement of the sick, together with the principal causes of admission during the calendar year of 1909, civilians being included:

Numerical statement of admissions and dispositions.

	From—		Total.
	Philippine Islands.	United States.	
Remaining in hospital December 31, 1908	45	167	212
Admissions:			
For gunshot wounds	2	7	9
Diarrhea and dysentery	50	19	69
Malarial fevers	11	53	44
Typhoid fever	3	6	9
Rheumatic affections	6	59	65
Venereal diseases	51	627	678
Injuries	26	288	314
Insanity	38	24	62
Alcoholism	3	59	62
All other causes	235	1,456	1,691
Total admissions during the year	425	2,578	3,003
Total admissions to be accounted for	470	2,745	3,215

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Numerical statement of admissions and dispositions—Continued.

	From—		Total.
	Philippine Islands.	United States.	
Dispositions:			
Total returned to duty	144	1,928	2,072
Discharged for disability	92	122	214
Discharged per expiration of term	11	14	25
Deaths from all causes	9	29	38
Deserted	4	7	11
Transferred to Hot Springs, Ark	0	3	3
Transferred to Fort Bayard, N. Mex	65	26	91
Transferred to Government Hospital for the Insane	30	16	46
Transferred to other hospitals	1	3	4
Otherwise disposed of	32	316	348
Total dispositions during the year	388	2,520	2,908
Remaining in hospital December 31, 1909	82	225	307

An active surgical clinic is maintained at this hospital, the following being a condensed tabular statement of the principal surgical conditions for which operations were performed:

Hemorrhoids	14	Bubo	26
Hernia, inguinal	15	Mastoiditis	2
Hernia, ventral	2	Fistula in ano	4
Appendicitis	21	Gunshot wound	2
Amoebic dysentery (appendicostomy)	1	Cholecystitis	1
Fracture	11	Cholelithiasis	1
Arthritis, tubercular	1	Abscess of liver	2
Varicocele	9	Osteo-myelitis	1
Osteo-sarcoma	1	Tubercular glands	1
Peri-rectal abscess	8	Hydrocele	3
Tuberculosis, testicle	1	Empyema	2

A large laboratory is maintained here for the use of the hospital and for the special work of the posts on the Pacific coast.

The mean strength of the personnel on duty at this hospital for the year was 8.3 officers and 175 enlisted men of the Hospital Corps. Company B, Hospital Corps, was also stationed at this hospital, with a mean strength of 1 officer and 127 enlisted men.

FORT BAYARD, N. MEX.

This hospital, which is intended for the treatment of cases of pulmonary tuberculosis in the army, was commanded during the year by Lieut. Col. George E. Bushnell, Medical Corps.

The following buildings were completed during the year: Steel water tank, capacity 300,000 gallons, and trestle; steam laundry; a medical department storehouse; an addition to the post exchange; three double sets of captains' quarters; one nurses' quarters; one addition to the administration building; and one sewage-purification plant. Appropriations were obtained and preliminary work done during the year for the erection of the following buildings: A new power house, including electric and refrigerating plant; one double and one single ward building; three double sets of captains' quarters and one set of commanding officer's quarters; one double set of hospital corps sergeants' quarters.

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It is also contemplated to request an appropriation for the construction of a pipe line to bring water by gravity to the post from certain springs situated on lands recently purchased by the War Department. The present water supply of this post is inadequate, and an additional supply, estimated at 300,000 gallons, which the development of these springs would afford, is badly needed.

During the year a number of old, unsightly, and unsanitary adobe buildings about the post have been torn down, some to make room for new buildings and others for sanitary reasons and to facilitate the policing of the post.

A complete survey is being made for a railroad connection to this post from Bayard Station, 4 miles southeast, on the Atchison, Topeka and Santa Fe Railroad. An effort will be made to secure this connection, which would result in largely increasing the comfort of the patients and others coming to or leaving this hospital and facilitate the new construction and maintenance of this post.

There were 792 total admissions for all causes. Of this number 10 were officers and 441 enlisted men, 275 beneficiaries of the Soldiers' Home, and 66 civilians, including the members of families.

The number of tuberculous cases under treatment December 31, 1908, was 288; on December 31, 1909, 300. The total number of cases of tuberculosis treated during the year was 731. Among the admissions there were 8 cases in which the diagnosis of pulmonary tuberculosis was not confirmed; 1 case of tuberculous cystitis and prostatitis, which was eventually discharged improved; 1 case of tuberculous laryngitis, discharged improved; 2 cases of amputation of thigh in upper portion for tuberculous osteitis of the bones of the leg, discharged improved; 4 cases of suspected pulmonary tuberculosis, which failed to develop.

The cases of pulmonary tuberculosis with complications were as follows:

Pleurisy with effusion	11	Syphilis	12
Chronic alcoholism	3	Tubercular abscess	3
Chronic tubercular laryngitis	44	Cardiac hypertrophy and valvular disease	7
Gonorrhea	4	Chronic nephritis	2
Lupus	2	Fistula in ano	10
Pleurisy fibrinous	27	Chronic tubercular otitis	9
Tubercular enteritis	7	Tubercular orchitis	4
Rheumatism	4	Tubercular osteitis	3
Catarrhal gastritis	11		
Pott's disease	1		

There were 67 deaths, with the following causes:

Pulmonary tuberculosis	54	Septic myocarditis	1
Pulmonary hemorrhage	1	Suicide	1
Chronic tubercular osteitis (pelvis)	1	Tubercular meningitis	2
Septic peritonitis	2	Gunshot wound	1
Acute yellow atrophy of liver	1	Cerebral hemorrhage	1
Broncho-pneumonia	1	Myocarditis	1

The result of six months or more treatment in 232 cases shows 14.6 per cent apparently cured as compared with 7.67 per cent for the preceding year; 5.6 per cent arrested as compared with 24.28 per cent for 1908 and 38.7 per cent improved as compared with 36.74 per cent for 1908.

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Table showing result of treatment in cases in hospital December 31, 1909.

Class.	Number.	Per cent.	Apparently cured.		Arrested.		Improved.		Unimproved.	
			Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Incipient	40	13.3+	4	10	5	12.5	20	50	11	27.5
Moderately advanced	182	60.6+	7	3.8+	15	8.2+	76	41.2+	84	46.1+
Far advanced	78	26	2	2.5+	.....	.....	13	16.6	63	80.7+
Total	300	100	13	4.3+	20	6.6+	109	36.3+	158	52.6+

Table showing results of six months (or more) treatmemt in original cases for 1909.

Class.	Number.	Apparently cured.		Arrested.		Improved.		Unimproved.		Died.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Incipient	43	13	30.2+	5	11.6+	14	32.5+	9	20.9+	2	4.6+
Moderately advanced	137	21	15.3+	7	5.1+	60	43.7+	34	24.8+	15	10.9+
Far advanced	52	.....	.....	1	1.9+	16	30.7+	19	36.5+	16	30.7+
Acute miliary	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	232	34	14.6+	13	5.51	90	38.7+	62	26.7+	33	14.2+

Table showing result of treatment in completed cases, 1909.

Class.	Number.	Apparently cured.		Arrested.		Improved.		Unimproved.		Died.	
		Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Incipient	70	16	22.8+	41	58.5+	2	2.8+	10	14.2+	1	1.4+
Moderately advanced	247	21	8.5	5	2	175	70.8+	26	10.5+	20	8
Far advanced	114	.....	.....	.....	.....	.....	.....	74	64.9+	40	35
Acute miliary	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	431	37	8.5+	46	10.6+	177	41	110	25.5+	61	14.1+

In the above tables, cases entering and leaving the hospital more than once during the year (of which there were 431) have each been taken up as a single case, regardless of the number of discharges and admissions in each case.

USE OF TUBERCULIN FOR DIAGNOSTIC PURPOSES.

The commanding officer has called the attention of this office to cases in which tuberculin had been used for diagnostic purposes before the arrival of patients at the hospital, with injurious results, by exascerbating chronic or localized infections. He says:

The indications given for the use of tuberculin always presuppose the fact that the operator is capable of making an absolutely accurate diagnosis of chest conditions previous to its use. There is at the present time an enthusiasm for tuberculin which, to a certain extent at least, I believe to be ill founded, but the most sanguine, not to say reckless, advocates of the use of tuberculin would, I am sure, never recom-

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mend its use hypodermically as a diagnostic measure in a case manifesting signs of considerable active pulmonary involvement, regardless of the fact that the sputum diagnosis might be negative.

The use of tuberculin as a diagnostic measure should be left exclusively in the hands of experts in physical diagnosis of the lungs, who would only use it in cases where there is some especial reason for making a diagnosis and in which there are no signs of pulmonary involvement. Personally, I consider the danger so great that although I have been devoting myself to the study of tuberculosis for a number of years and ought to be expert in its diagnosis, I should hesitate long before giving a diagnostic injection of tuberculin.

WALTER REED GENERAL HOSPITAL.

This is the general hospital at Washington, D. C., and also serves as a post hospital for Washington Barracks, D. C., an autoambulance conveying the patients to the hospital from the post at sick call and answering emergency calls.

The post hospital building at Washington Barracks, D. C., was occupied until May 1, 1909, when the General Hospital was transferred to the new building on Georgia avenue. The number of cases admitted during the year was 569, being a decrease of 191 from the preceding year. Of this number 315 were medical, 124 surgical, and 130 venereal. Sixty-three were officers, 10 retired officers, 451 soldiers, 18 retired soldiers, 1 discharged soldier, and 26 civilians, including the members of officers' families.

There were 7 deaths, no 2 being from the same cause. There were 26 discharged on certificate of disability. The number of officers on active list admitted was 63, of whom 15 remained under treatment at the end of the year. Ten retired officers were also admitted.

The following table shows the movement of the sick, together with the principal cause of admission during the calendar year of 1909, civilians being included.

Numerical statement of admissions and disposition.

Remaining January 1, 1909	34
Infectious diseases	243
Diseases of the nervous system and organs of special sense	61
Diseases of circulatory system	21
Diseases of the respiratory system	31
Diseases of the digestive system	91
Diseases of genito-urinary system (nonvenereal)	14
Diseases of the skin and cellular tissues	12
Diseases of the organs of locomotion	24
Malformations	1
External causes	68
Undefined diseases	3
Total	603
Disposition:	
Discharged from hospital (duty)	484
Discharged per expiration term of service	4
Discharged from service disability	26
Died	7
Transferred to other hospitals	37
Remaining December 31, 1909	45
Total	603

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An active surgical clinic is maintained at this hospital, the following being a condensed tabular statement of the principal surgical conditions for which operations were performed:

Appendicitis:	
Acute	2
Chronic	8
Amoebic dysentery (appendicostomy)	1
Hemorrhoids	8
Fistulo in ano	1
Hernia:	
Ventral	2
Inguinal	11
Fistula urethral	2
Peritonitis:	
General septic	1
Tubercular	1
Fracture patella	1
Wound external popliteal nerve (neuroplasty)	1
Gumma gangrenous testicle (orchidectomy)	1
Movable spleen (splenectomy)	1
Retroflection of uterus (ventral suspension for retroversion of uterus)	1
Papillomata, uterine	1
Adenitis, inguinal	9
Necrosis, femur	2
Osteo periostitis tubercular	1
Vicious union	2
Cholilithiasis	2
Abscess hepatic tropical	1
Tubercular glands	1
Fractures	2
Pyelitis	1
Perineal fistulo	1
Hypospadias	1

During the year the following auxiliary buildings have been completed: Two single sets of officers' quarters which are now occupied, one by the officer commanding the company of the Hospital Corps and the other by the quartermaster; the hospital corps barracks, a storehouse for the quartermaster, commissary, and medical supplies; a stable, wagon shed, and garage.

Funds for the erection of a building for the Army Medical School at this hospital are to be included in the annual estimate for the fiscal year ending June 30, 1912.

Plans have been completed and contracts let for the erection of a building for nurses' quarters and for a mortuary.

ARMY AND NAVY GENERAL HOSPITAL, HOT SPRINGS, ARK.

This hospital is intended especially for patients having diseases in which hydrotherapeutic treatment is indicated.

The movement of the sick during the year of 1909 at this hospital is shown in the following table, which includes retired and discharged soldiers of the army and navy, both regular and volunteer, as well as those on the active list.

Remaining December 31, 1908	100
Admitted	749
Discharged from hospital	701
Discharged from service for disability	23
Died	18
Transferred to other hospitals	1
Otherwise disposed of	4
Aggregate treated in hospital	849
Remaining December 31, 1909	95

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There were 749 admissions during the year. Of this number 198 were on the active list and 551 in the other classes above enumerated.

Included in this enumeration are 26 officers of the army and 4 of the navy on the active list, 11 retired officers of the army, and 8 retired officers of the navy.

The daily average of patients, arranged by months, is as follows:

January	109	July	64
February	106	August	60
March	99	September	75
April	90	October	81
May	108	November	82
June	94	December	104

The causes of admission were in general:

Epidemic diseases	2
General diseases	337
Diseases of the nervous system	106
Eye	2
Circulatory system	26
Respiratory system	11
Digestive system	76
Genito-urinary system	51
Skin and cellular tissue	28
Organs of locomotion	83
Other diseases	9
Injuries	18
Total	749

Among the general diseases are included 306 cases of acute and chronic rheumatism.

Concerning the care of the sick and the administration of the hospital the recommendations of last year are renewed, special emphasis being placed on the need of a building for the officer patients, which should have a ward, private rooms and baths, dining room and kitchen, recreation room, hydrotherapeutic room, electrical treatment room, exercise and massage room, and servants' quarters. The present method of lodging officers in the administration building, permitting them to obtain their meals in town when they are able to walk, and at other times serving them in their rooms meals cooked by soldier cooks and brought from a distant building, is thoroughly unsatisfactory. Other buildings and improvements needed are: One two-story ward for veterans; one additional story on each of wards Nos. 4 and 5; one medical and physical gymnasium; one hospital corps barracks building; one double set of hospital corps sergeants' quarters; an addition to the power house; roads, walks, and grading.

It is not possible to supply the funds for these improvements from the general appropriation, and they should be provided by a special appropriation.

PROVIDENCE HOSPITAL.

The act approved March 4, 1909, having appropriated $19,000 for the support and medical treatment of destitute patients in the city of Washington, D. C., under a contract to be made with Providence Hospital by the Surgeon-General of the Army, the relief afforded was as follows:

Patients in hospital July 1, 1909	105
Admitted during the year	1,185
Total number treated	1,290

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Average number admitted per month	108
Number remaining in hospital June 30, 1910	89
Total number of days' treatment afforded	34,999
Average number of days' treatment per patient	27
Average number of patients treated per day	96
Longest term of treatment (days)	242
Shortest term of treatment (days)	1
Number of patients in hospital during the whole year	None.

CONSTRUCTION AND REPAIR OF HOSPITALS.

During the past fiscal year plans and specifications were prepared in this office for new hospitals to be erected at Boise Barracks, Idaho, and Fort Crockett, Tex., and for isolation wards to be erected at Fort Leavenworth, Kans., Fort Riley, Kans., and Fort Slocum, N. Y. Plans and specifications were prepared for enlarging the hospitals at Fort Brady, Mich., Fort Crook, Nebr., Fort D. A. Russell, Wyo., Jefferson Barracks, Mo., Fort Leavenworth, Kans., Fort Logan, Colo., Fort Omaha, Nebr., Fort Robinson, Nebr., Fort Sam Houston, Tex., Fort Sheridan, Ill., Fort Slocum, N. Y., Fort Snelling, Minn., Fort Williams, Me., and Fort Worden, Wash. Improvements were designed for the hospital at Columbus Barracks, Ohio, and for the Walter Reed General Hospital, Takoma Park, D. C. Sketch plans were prepared for a pavilion ward to be constructed of concrete for insane patients at the general hospital, San Francisco, Cal., and for enlarging the hospital at Fort Shafter, Hawaii.

Contracts were entered into for the erection of the new hospitals, including the isolation wards, and for some of the additions and improvements, including a storehouse for the general hospital, Fort Bayard, N. Mex. Some of these additions and improvements have been completed, others are in course of erection, and some are in the market for proposals as they pertain to the appropriation for the next fiscal year. The entire work is progressing in a satisfactory manner, and it is believed that the whole will be under contract in the near future.

Under a special appropriation, buildings are being erected at the general hospital, Fort Bayard, N. Mex., consisting of quarters for twenty army nurses, a laundry building, and three double sets of quarters for officers. The construction of other buildings is also contemplated for this general hospital, the cost of which is to be paid from the same special appropriation.

At the Walter Reed General Hospital the following buildings have been completed or are in course of erection: One hospital corps barrack building, two single sets of officers' quarters, a storehouse, a stable and wagon shed, and a shed and garage, all of which are being paid for from appropriations made for the quartermaster's department. This general hospital was occupied April 30, 1909, and the old hospital at Washington Barracks was turned over to the post authorities, but it is unsuitable for the needs of the garrison at that post and will have to be removed before the barrack building, which is partly erected, can be completed. A new hospital is not needed, as the sick of the command requiring hospital treatment are cared for at the Walter Reed General Hospital, but a small building for dispensary purposes is necessary.

A special appropriation of $60,000 was made by Congress to erect a new and modern hospital at San Juan, P. R., and was reappropriated

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for use during the fiscal year, but was not needed, as the War Department is negotiating for an exchange of property with the insular government to secure the building which has been used as a military hospital for more than one hundred years. This hospital is a massive structure of brick, stone, and mortar, occupying the western half of the block which faces the infantry barracks, and with an expenditure of about $10,000 it can be placed in excellent condition.

An allotment of $50,000 was made from the appropriation for construction and repair of hospitals for use in the Philippines Division during the fiscal year, and an allotment of $12,000 was also made from the appropriation for quarters for hospital stewards to cover the cost of quarters for hospital corps sergeants, first class, in the same division. So far as known at this time these allotments were ample for the purposes.

In addition to the foregoing, the hospitals at military posts already established and occupied were improved or kept in proper repair so far as funds would permit. The Army and Navy General Hospital, Hot Springs, Ark., was also provided for, but this hospital needs additional buildings and ground to meet the increased demands being made for accommodations. The following improvements are considered necessary for this general hospital: One officers' ward building; one officers' bath house; one officers' mess hall; one double set of officers' quarters; one two-story ward for veterans; one additional story on each of wards Nos. 4 and 5; one medical and physical gymnasium; one hospital corps barrack building; one double set of hospital corps sergeants' quarters; an addition to the power house; also roads, walks, and grading, together with the necessary plans, surveys, etc.

These improvements are estimated to cost $350,000. Effort is being made to secure additional ground from the Department of the Interior.

In connection with an estimate submitted for new plumbing fixtures desired for the Army and Navy General Hospital to replace unserviceable fixtures which became clogged by a deposit from the water, it was found by an analysis made in this office that the deposit was soluble in a solution of muriatic acid, and a practical test developed the fact that porcelain plumbing fixtures immersed in a 20 per cent solution of the above-named acid for forty-eight hours cleansed them entirely, while lead and iron pipes similarly clogged, immersed in the same solution for twelve hours were thoroughly freed from the deposit without any apparent injury.

Numerous military posts require new hospital buildings to replace old and dilapidated structures which have been in use for many years, and which require large sums of money annually for repairs or improvements. New structures of a modern type would be economical, but it is not possible to erect a suitable modern hospital at any military post for the maximum sum allowed by law to be spent from the general appropriation for such purpose. Section No. 1136, Revised Statutes of the United States, limits the cost of permanent structures to $20,000 unless special authority be first obtained from Congress. This law was enacted in 1853, when material and labor were much lower in price than they are at present, and it is thought that this statute should be modified to suit the changed conditions.

New and improved hospitals should be erected at the following military posts in the near future:

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Fort McPherson, Ga.—The hospital at this post is entirely inadequate, is located in close proximity to a railroad, has no cellar except a small excavation for a heating apparatus, which was made some years after the building was erected. The heating and ventilation are not suitable for a modern hospital. The plumbing is crude and efforts have been made from time to time to improve it, but it is far from being in compliance with modern sanitary requirements. The operating room is located in a small annex and adjoins a small laboratory. There is no instrument room, no etherizing room, no preparation or recovery rooms, and no surgical ward. There is no suitable ward for the isolation of contagious diseases and no prison ward, and the hospital corps detachment is quartered in an old temporary wooden building which was erected for use during the Spanish-American war. The mess room and kitchen are too small and are unsuited for their purposes, it being necessary to set tables two or three times to accommodate the inmates. The entire hospital is such that it would be in the interest of economy to replace it with a modern structure. A hospital of sufficient capacity should contain 87 beds for patients and attendants, and the estimated cost of such a building is $90,000. The present building could be advantageously used for other purposes.

Fort Missoula, Mont.—This post has a provisional hospital, of wood, which was erected in 1878. It is entirely devoid of modern appliances, and it would be a waste of funds to undertake to improve it. A regimental post is in course of erection at this fort, and a new modern hospital of sufficient capacity is a necessity which should be supplied. A suitable hospital should have accommodations for 60 patients, 22 hospital corps privates, and 5 noncommissioned officers. The estimated cost of such a building is $90,000.

Post of Washington Barracks, D. C.—This is an engineer post in connection with the Army War College. A small hospital was erected at this station in 1893, became a general hospital in 1898, was abandoned as such upon the completion of the Walter Reed General Hospital in 1909, and is to be torn down for the purpose of securing room to complete a barrack building which is now partly erected. Some provision should be made for sick call, administrative purposes, and for the temporary care of the sick at this post. It is believed that a central infirmary, with one small ward, a receiving room, office, etc., to care for the sick until such time as the patients can be moved to the Walter Reed General Hospital, will answer the purpose. A suitable infirmary building in keeping with the other buildings at the post is estimated to cost $25,000.

Fort Logan H. Roots, Ark.—The hospital at this post is inadequate and obsolete. It has no cellar and was originally heated by stoves, but a small cellar was constructed under an outbuilding for a heating plant. This is unsatisfactory on account of the distance of the boilers from the building, which necessitated the laying of pipes under the porches and open foundation, causing the loss of a large amount of heat, so that it is almost impossible to secure a comfortable temperature in the hospital during even moderately cold weather. Plans and specifications were prepared in this office for a small addition to this hospital with a view of better adapting it for use, but the lowest bid received was over $38,000. Owing to the fact that the building

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is far from being modern or suitable, that the heating and ventilation are unsatisfactory, that there is no cellar, no modern operating room, that the addition, even if authorized, would not modernize it, and that the hospital would continue to be a source of complaint and expense, it was decided to recommend the rejection of all proposals, to recall the plans and specifications, and to ask for sufficient funds to erect a modern hospital of suitable capacity. The hospital at this post should have accommodations for 18 patients, 8 hospital corps privates, and 2 noncommissioned officers. The high cost of material, labor, and transportation at this post renders building expensive, and it is estimated that $50,000 will be required to erect a modern hospital on the high bluff where this post is located.

Fort Hamilton, N. Y.—In 1904 the commanding officer of this post stated that the present post hospital was entirely inadequate for the needs of the garrison, that there was insufficient space for attendants, that there was no isolation ward and no prison ward, and that in the rearrangement of the post a better site had been selected. In 1906 the chief surgeon, Department of the East, stated that the hospital at Fort Hamilton was very badly located, standing on rather low ground, and facing at a distance of 14 yards a noisy public highway, on the other side of which were saloons and other objectionable places of public resort. In view of these circumstances it is believed that the interests of the service will be best subserved by erecting a modern hospital on a more appropriate site, especially so as it is proposed to use the present building for a band barrack. A hospital of sufficient capacity for this post should contain accommodations for 40 patients, 16 hospital corps privates, and 4 noncommissioned officers, and the estimated cost of such a building is $60,000.

Fort Benjamin Harrison, Ind.—One ward wing and the administration building of a modern hospital have been erected at this post, but the building has not been completed. It lacks one ward wing and a rear annex. It is insufficient in capacity, and in March, 1909, the surgeon recommended that the hospital accommodations at this post be doubled. The chief surgeon, Department of the Lakes, stated it is important that the hospital at Fort Benjamin Harrison be completed at an early date, as the hospital facilities are inadequate even for the regular garrison, and are entirely so under present circumstances or when this post is used as a base for the maneuver camp. One wing and the annex of the standard plan are yet lacking; in a word, less than half the hospital has been completed. The department commander stated that this hospital should be completed by adding the other wing and rear annex required for the standard plan for a 60-bed hospital. To complete this hospital by adding the other ward wing and rear annex is estimated to cost $40,000.

Fort H. G. Wright, N. Y.—This post is being enlarged by the erection of new batteries, new buildings, etc., and the ultimate strength of the garrison is to be 7 companies of coast artillery. The present hospital building is in close proximity to the batteries and is unsuitable for occupation as a hospital. It is also entirely inadequate, but it is proposed to use the building as a band barrack and to erect a new modern hospital of sufficient capacity on a suitable site removed from disturbance by gun fire. The enlarged garrison will require

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hospital accommodations for 40 patients, 16 hospital corps privates, and 4 noncommissioned officers, the estimated cost of such a building being $60,000.

Fort Niagara, N. Y.—The hospital at this post has 13 beds and the garrison is to consist of 8 companies of infantry. This will require hospital accommodations for 32 patients, 15 hospital corps privates, and 4 noncommissioned officers. It is proposed to enlarge this hospital by adding another ward for 12 beds and a rear annex to contain kitchen, mess hall, hospital corps dormitory, prison ward, isolation ward, etc., and the estimated cost of these improvements is $35,000.

Fort George Wright, Wash.—The hospital at this post is inadequate and is not complete. It consists of two ward wings and an administration building, and it is proposed to enlarge the capacity by adding the rear annex which was omitted when the building was erected. This will contain the kitchen, mess hall, hospital corps dormitory, prison ward, isolation ward, etc., and the estimated cost of this improvement is $25,000.

Owing to the increase in Coast Artillery and the concentration of companies at various posts it is necessary to increase the hospital accommodations by enlarging the buildings. It is estimated that $100,000 will be required for this purpose.

Isolation wards.—Seven of these detached wards have been authorized, one of which has been completed, three are in course of erection, and three remain to be contracted for. In my opinion, three of these buildings should be provided each year until all the regimental and large artillery posts are supplied, as these buildings are absolutely necessary for the proper treatment of contagious diseases.

In addition to the foregoing, plans and specifications were prepared in this office for hospital corps sergeant's quarters authorized for Columbus Barracks, Ohio, Jefferson Barracks, Mo., Fort Leavenworth, Kans., Fort Slocum, N. Y., and the Walter Reed General Hospital, Takoma Park, D. C. These are all double sets of quarters, and those at Columbus Barracks, Ohio, Jefferson Barracks, Mo., and the Walter Reed General Hospital have been completed. The others are in course of erection and are nearing completion. A number of large military posts are in need of these double sets of quarters, and the appropriation should be liberal until such time as the hospital corps sergeants are supplied with suitable habitations. All the quarters at military posts already established and occupied have been repaired, improved, and kept in good condition so far as funds would permit.

MEDICAL AND HOSPITAL SUPPLIES.

The sum of $700,000 was estimated for the appropriation "Medical and Hospital Department" for the fiscal year 1910. This amount was appropriated by Congress, and would have been adequate to the needs of the department but for the loss sustained by the burning of the New York medical supply depot on February 4, 1910. The stock on hand was practically all destroyed by this fire, entailing to the department a money loss of about $367,000. This loss was covered by the appropriation of a like amount by Congress in the general deficiency bill.

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It became necessary to anticipate this appropriation, to the extent of about $100,000, in order to meet the current needs of the department. This was done by authority of the Secretary of War, under the provisions of the act for the support of the army, fiscal year 1906. The fire at the depot was investigated by a board of officers, and no satisfactory explanation of its origin was determined.

The supply depot has been newly located in a thoroughly fireproof building, at 543 Greenwich street, New York City, and it may be safely assumed that the possession of this character of storehouse will obviate embarrassments which have come to this department by fires. This recent fire is the second to occur at the depot within the past two years, the first being in 1908, and each causing very large losses.

The policy of assembling field supplies has been continued, the expenditure for the year for this purpose amounting to $52,206.29. The problem of storing this equipment has been met in part by securing from the Quartermaster's Department a larger storehouse at the powder depot, St. Louis, Mo., in lieu of one occupied up to the present time. This change made available to the Medical Department about 30,000 cubic feet of additional space. This relief, however, is only temporary; the department is only approximately equipped for field service, and if it is to be adequately prepared for such service, additional storeroom must be provided for the materials necessary for the equipment. It has been repeatedly demonstrated that it is practically impossible to procure this material in the short time available for its purchase when war supervenes. A project to procure a new storehouse of modern construction and increased storage facility in this city without additional cost is under way, but has not, up to this time, taken definite shape. It is proposed to locate this storehouse near the present quartermaster's storehouses, at Eckington, D. C., and if the plan is consummated it will result in much greater facility for handling stores for shipment.

During the year medical supplies to the value of $51,777.82 were shipped to Manila, in addition to $60,000 disbursed in the division of the Philippines under the direction of a chief surgeon.

The new ambulance has been finally approved as recommended by the transportation board, and 100 of these vehicles are now being built by the Quartermaster's Department under contract. The Quartermaster-General has engaged to furnish 100 of these vehicles each year until 500 have been accumulated, unless conditions should require a more speedy line of policy. The travois and travois harness have been definitely selected, and 20 sets of this equipment were purchased and sent out to hospital corps companies during the year for trial and report of their suitability for the service.

Litter fittings for railway (freight) cars have been considered by the transportation board, and it has adopted a set of fittings made in this country at a cost of $12 per set. Each set accommodates three litters and 8 sets may be placed in an ordinary box car, providing suitable facilities for the transportation of 24 recumbent men. It is a matter of congratulation that this device places within the control of the department a cheap means of converting ordinary box cars for the safe and comfortable transport of sick and wounded. The transportation board has recommended the purchase of 500 sets of these fittings, and the matter is now under consideration by the Quartermaster-General.

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The medical and hospital stores provided for the army continue of a high standard and are found to be an economical, attractive, and convenient source of supply for other branches of the public service, notably the organized militia and the Isthmian Canal Commission. Transfers of army medical stores for such public use have been made in considerable quantity during the year. These transfers can now be made without detriment to the supply of the army, as the value of the stores is in due season reimbursed to appropriations under the control of the Surgeon-General, and under existing law (act June 12, 1906, 34 Stats., 256) remains available for a year or more to replace them. The transfers in question, and other authorized dispositions of serviceable medical property, are exhibited in detail in the following table:

A. Supplies issued to States and Territories for the use of the organized militia, under section 1661, Revised Statutes, and appropriations supplementary thereto:		
Arizona	$35.50	
Arkansas	255.74	
California	861.75	
Colorado	177.50	
Connecticut	266.63	
Delaware	133.22	
District of Columbia	394.76	
Florida	25.69	
Georgia	515.78	
Illinois	399.98	
Indiana	1.25	
Iowa	636.54	
Kentucky	440.40	
Louisiana	898.37	
Maine	958.05	
Maryland	539.93	
Massachusetts	3,128.66	
Michigan	30.79	
Missouri	215.20	
Montana	133.13	
Nebraska	625.86	
New Hampshire	437.84	
New Jersey	1,095.81	
New Mexico	85.38	
New York	10,867.74	
Ohio	3,674.05	
Oregon	255.60	
Pennsylvania	1,991.75	
Rhode Island	56.34	
South Carolina	577.24	
Tennessee	1,393.63	
Texas	480.50	
Vermont	167.37	
Virginia	266.40	
Washington	177.50	
West Virginia	563.76	
Wisconsin	421.22	
Wyoming	152.83	
		$33,339.69
B. Sales to States under section 17, act of January 21, 1903 (32 Stats., 778):		
Missouri	$18.81	
Pennsylvania	201.94	
Wisconsin	173.01	
		393.76

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C. Supplies transferred to other bureaus and departments of the Government:		
Isthmian Canal Commission	$22,126.15	
Alaska Road Commission	31.67	
Engineer Department, U. S. Army	280.00	
Quartermaster's Department, U. S. Army	315.11	
Navy and Marine Corps	1,442.31	
Forest Service	177.50	
		$24,372.74
D. Sales to the civil government of the Philippine Islands		476.01
E. Sales to civilian employees of the army and civilians		2,634.84
Total		61,217.04

LABORATORIES.

The laboratories at the Army Medical Museum, at the General Hospital, San Francisco, Cal., at Fort Leavenworth, Kans., and at Manila, P. I., have been equipped with men and materials for the examination of water supplies for the posts for their respective territories. They also carry out the clinical laboratory tests for the same posts and have thus relieved the laboratory of the Army Medical School of considerable work which can be done more promptly and with better results, as now less time elapses between the collection of the material and its examination. This has proved to be a very important matter in the case of the examination of the excreta from typhoid patients as the *Bacillus typhosus* dies out as a rule in both feces and urine after about forty-eight hours. During the coming year it is expected that these laboratories will be in a position to make the serum test for syphilis and to carry out pathological examinations of diseased tissues for all the posts in their districts.

The laboratory in Manila has been equipped for the manufacture of antityphoid vaccine in order that troops serving in the Philippines may have their requisitions filled promptly.

Summary of laboratory work at the Army Medical Museum for year ending June 30, 1910

Examinations of typhoid cases	2,545
Cases of typhoid	72
Convalescents	102
Suspects, for diagnosis	132
Suspected carriers	351
Widals:	
Negative	143
Positive	168
Blood cultures:	
Negative	55
Positive	3
Blood cultures from clots:	
Negative	157
Positive	5
Feces:	
Negative	1,007
Positive	35
Urine:	
Negative	956
Positive	12
Bile, human for typhoid, negative	1
Dysentery, from feces:	
"Flexner," positive	1
"Y," positive	2

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Clinical laboratory examinations for year ending June 30, 1910.

Blood counts	33
Differential counts	18
Malaria, examination for	25
Urinalyses	222
Sputa, examination of	36
Feces, examination of	12
Bacteriological of water	26
Cultures of pus, exudates, etc	58
Animal inoculations for sera, diagnosis, etc	149
Autogenous vaccines prepared	47
Histological examinations of operative and p. m. tissues	251
Widals	12
Miscellaneous smears, etc	12

REPORT UPON THE WASSERMANN TEST.

The Noguchi modification of the Wassermann test has been used in this laboratory and has proven most satisfactory.

The total number of cases examined to June 30, 1910, has been 547, of which 227 were positive and 320 negative. The cases may be divided into the following classes: (1) Those in which the diagnosis was lues or suspected lues; (2) those in which the diagnosis or clinical symptoms were those of some other disease; (3) those in which lues could be positively excluded.

Class I. Cases in which the diagnosis was lues or suspected lues.—Of this class there were 299 individuals examined, with a positive result in 227, or 75.9 per cent. The following table gives the results in the various stages of the disease:

Stage of disease.	Cases.	Positive.	Negative.	Per cent positive.
Primary	67	43	24	64
Secondary	135	115	20	85
Tertiary	46	35	11	76
Latent	43	27	16	62.7
Congenital	8	7	1	87.5
Total	299	227	72	75.9

Class II. Cases in which the diagnosis or clinical symptoms were those of other diseases than lues.—Of this class there were 178 individuals examined, with a positive result in three cases. Of the three cases two were suffering from malarial fever of tertian type, and were examined during the febrile stage, while the other positive result was obtained in a case of framboesia. A positive result in malarial fevers and in framboesia has been obtained by several workers using the original Wassermann technique in both these diseases, so that the error is not inherent in the Noguchi modification.

Class III. Cases known not to be luetic in nature.—The test has been applied to 70 healthy individuals in whom lues could be positively excluded, with a negative result in every case.

The following table gives the date of the appearance of the reaction in 31 cases tested within thirty days after the appearance of the initial lesion.

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TABLE No. II.—*Date of appearance of positive reaction in 31 cases of lues.*

Days after initial lesion.	Cases positive.	Days after initial lesion.	Cases positive.
5	1	20	1
8	2	21	2
11	2	22	1
13	3	23	1
14	1	25	2
17	2	28	1
18	2	29	2
19	2	30	6

The reaction may have been present in any of these cases before we tested the blood, the table giving the first examination made in every case. It will be observed that the earliest reaction was obtained five days after the appearance of the initial lesion, while in the majority of the cases the reaction appeared within two weeks after the appearance of the initial lesion.

The following table gives the results obtained with the complement fixation test at various periods after the appearance of the initial lesion:

TABLE No. III.—*Result of complement fixation test at various periods after initial lesion.*

Days after initial lesion.	Positive.	Negative.	Days after initial lesion.	Positive.	Negative.
32	1	.....	150	1	.....
33	1	.....	180	4	.....
34	.....	1	210	2	.....
35	2	.....	270	2	.....
38	1	.....	300	1	.....
42	2	.....	330	1	.....
46	2	.....	365	5	.....
49	1	.....	380	1	.....
50	1	.....	547	1	.....
55	1	.....	730	3	.....
60	2	1	912	1	.....
70	2	.....	1,095	1	.....
72	1	.....	1,460	2	.....
87	1	.....	1,825	2	.....
90	7	1	2,190	2	.....
99	1	.....	2,555	1	1
100	1	.....	2,920	1	1
110	4	.....	3,650	1	.....
120	4	.....	4,015	1	.....
144	1	.....			

The effect of treatment is shown in the following table:

TABLE No. IV.—*The result of specific treatment upon the complement fixation test.*

Time treated.	Cases.	Positive.	Negative.	Time treated.	Cases.	Positive.	Negative.
2 weeks	2	1	1	40 weeks	1	1	.....
4 weeks	1	.....	1	1 year	4	1	3
6 weeks	2	1	1	14 months	3	1	2
8 weeks	3	2	1	15 months	1	1	.....
10 weeks	1	1	.....	18 months	2	2	.....
12 weeks	4	3	1	2 years	6	5	1
16 weeks	1	1	.....	30 months	1	1	.....
24 weeks	4	3	1	3 years	2	.....	2
28 weeks	3	1	2	8 years	1	1	.....
32 weeks	4	1	3	12 years	1	1	.....
36 weeks	5	4	1				

Total cases, with treatment, 52; positive, 32; negative, 20; per cent, 61.

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This table is of interest both in showing how quickly the reaction may disappear after specific treatment is instituted and how long it may persist despite treatment. It will be observed that negative results were obtained in as short a period as two weeks after beginning treatment, while no less than 12 of the negative results were obtained in patients who had been under treatment for less than one year. This fact demonstrates that a negative reaction can not be regarded as an indication that the infection is cured, for if the treatment be discontinued the reaction will reappear in most of these patients. It can, however, be used as an index of the efficiency of treatment. The table also demonstrates that irregular or careless treatment has but little effect, for in almost all of our cases in which the reaction had persisted after treatment it was found that the methods had been faulty or that the treatment had been taken at irregular intervals.

Summary of laboratory work at Fort Leavenworth, Kans., from January 15 to December 31, 1909, inclusive.

Number of typhoid cases	156
Suspected typhoid carriers	17
No typhoid bacilli found	12
Typhoid bacilli found	3
Paratyphoid bacilli found	2
Typhoid cases which have shown positive reaction in either blood culture, agglutination, feces, or urine	46
Typhoid cases which have shown negative reaction in either blood culture, agglutination, feces, or urine	110
Total number of examinations made, in typhoid cases, of:	
Feces	225
Positive	19
Negative	206
Urine	228
Positive	16
Negative	212
Blood cultures	7
Positive	4
Negative	3
Agglutinations	149
Positive	93
Negative	56
Clinical laboratory examinations:	
Red blood cell and leucocyte counts	26
Differential counts	44
Examinations for malaria	204
Urine analysis	320
Examinations of sputa	160
Examinations of feces	59
Examinations of water	75
Food analysis	9
Pathological examinations	10
Autopsies	3
Gland contents	1
Miscellaneous	18

Summary of laboratory work at Army General Hospital, San Francisco, Cal.

Examinations:		Skin scraping	35
Blood—		Tissue scraping	28
Counts	1,362	Fluids obtained by aspiration	25
Malaria	516	Serum for treponema	38
Widal	116	Stomach contents	83
Urine	3,469	Miscellaneous	12
Sputum	1,987	Water analyses	29
Feces	539	Milk analyses	20
Pus	285	Guinea-pig inoculations	13
Culture	132	Autopsies	30

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The table does not include typhoid work. Widal tests were made from January 1 to May 1, when more systematic typhoid work was begun.

LIBRARY OF THE SURGEON-GENERAL'S OFFICE.

The question of adequate space for the ever-growing library was beginning to be of grave concern when new quarters were secured for the Army Medical School, and enough room vacated by its removal to accommodate the new material of the library and museum, and also to provide much-needed space for the chemist and the architect of the office and to fit up two rooms for the use of examining boards, which are practically in continuous session.

The building occupied by the library and museum is in need of rather extensive repairs, and some renovations are required upon sanitary grounds. Estimates for an appropriation for this purpose have been submitted.

The historical collection of medical classics selected for exhibition from the vast store of books in the library is completed and includes about 300 volumes, nearly every one of the first edition. Such an exhibition, illustrating the progress of medicine from Hippocrates to Schaudinn, is of interest to both medical men and lovers of rare books. It is doubtful if any other library in the world could duplicate it. The historical collection proper begins with Hippocrates, but modern transcriptions of the Ebers papyrus, the Charaka-Samhita, the Susruta, and the Code of Hammurabi are shown, giving the earliest records of Egyptian, Aryan, and Babylonian medicine.

The volumes of the Greek and Latin masters are also superb specimens of the early printers, the Aldine editions of Hippocrates, Galen, Celsus, Ætius, Paulus Æginetа, Oribasius, and Leonicenus, the Elzevirs of Hippocrates and Celsus, and the Frobenius imprints of Hippocrates and Ætius, with the characteristic bindings of stamped pigskin.

Mohammedan medicine is represented by the Arabic texts of Avicenna, Rhazes Albucasis, and Abu Mansur; early Jewish medicine by the rare Florence imprint of Moses Maimonides (1478).

Early anatomy is exemplified by such works as the Melerstat Mundinus of 1493, the Viennese reprint of Ricardus Anglicus, various editions of Ketham, and the stately first edition of the "Fabrica" of Vesalius, from the press of Oporinus, at Basle (1543), this copy having on a fly leaf an autograph Latin poem by Melancthon. The library also possesses the rare "Epitome" of the same work issued the previous year (1542), containing the plates commonly ascribed to Titian.

The progress of anatomical illustration is to be seen in selected cuts and plates in the works of Mundinus, Ketham, Peyligk, Hundt, Dryander, Stephanus, Valverde, Casserius, Bidloo, Cheselden, William Hunter, and Scarpa, while artistic anatomy is shown by the drawings of Leonardo da Vinci and Raphael and the original engravings of Albrecht Dürer and John Flaxman.

In medieval surgery are to be seen the treatises of Roger of Parma [in manuscript], Salicetus, Lanfranc, Vigo, Ypermans, Pfolspeundt, Braunschweig Gersdorff; in medieval obstetrics the first four editions of the "Rosengarten" of Rosslin with the English translation of Raynalde. The leading examples of early English medicine,

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Gilbertus Anglicus, John of Gadesden, Bernard de Gordon, and John Arderne are in the medieval collection; the last is a rare manuscript of the fourteenth century.

Sixteenth-century medicine is represented in the works of Paracelsus, Ambroise Paré, Fracastorius Sanctorius, and Cornaro; the seventeenth, by the classics of Harvey, Athanasius Kircher, Glisson, Descartes, Swammerdam, Leewenhoek, Sydenham, and Malpighi The eighteenth century includes the names of Boerhaave, Haller, van Swieten, Winslow, Morgagni, Auenbrugger, Jenner, and John Hunter, and the nineteenth and twentieth centuries are prominent for the works of Bichat, Pinel, Bell, Magendi, McDowell, Laennec, Louis, Beaumont, Skoda, Helmholtz, Claude Bernard, Daniel Drake, Marion Sims, Virchow, Semmelweis, Pasteur, Lister, Cohnheim, Koch, Laveran, Behring, Walter Reed, and Fritz Scaudinn.

This small collection for exhibition of course is only the smallest fraction of the rarities of the library, but it represents very well the landmarks of medicine from its beginning and throughout its progress.

There were presented to the library during the year 309 books and 3,536 pamphlets and journals. A noteworthy gift is the beautiful reprint of Vesalius "Tabulae Anatomicae Sex," Venice, 1538, in elephant folio, one of 32 copies made for Sir William Stirling-Maxwell and presented to the library by his son, Sir John Stirling-Maxwell. It is believed to be the only copy in the United States. Of the original only two copies are known to exist, and we owe also the possession of this reprint to the life-long friend of the library, Dr. William Osler, who requested Sir John Stirling-Maxwell to give one of the 6 remaining copies to us.

The late Thomas Windsor, of Manchester, England, a well-known bibliophile and an old correspondent and friend of the Surgeon-General's Library, has left to it by will such of his medical books as are needed to fill vacancies.

The following table shows the additions made to the library during the year 1909–10:

	On hand June 30, 1909.	Added during fiscal year.	Total June 30, 1910.
	Volumes.	*Volumes.*	*Volumes.*
Medical journals	52,571	1,052	53,623
Medical transactions	8,386	224	8,610
Bound theses	2,604	.....	2,604
Bound pamphlets	3,092	.....	3,092
Other medical books	102,226	2,115	104,341
Total	168,879	3,391	172,270
Medical theses	81,627	2,140	83,767
Medical pamphlets	215,933	5,008	220,941
Total	297,560	7,148	304,708

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ARMY MEDICAL MUSEUM.

The total number of specimens in the museum at the close of the fiscal year, June 30, 1910, is 34,358.

The following statement shows in detail the additions and changes in the different sections:

Pathological section:	
In museum June 30, 1909	12,975
Discarded	96
	12,879
Received during the year	73
In museum June 30, 1910	12,952
Anatomical section:	
In museum June 30, 1909	1,200
Donated	19
	1,181
Received during the year	5
In museum June 30, 1910	1,186
Section of comparative anatomy:	
In museum June 30, 1910	694
Microscopical section:	
In museum June 30, 1910	12,916
Miscellaneous section:	
In museum June 30, 1909	3,085
Discarded	7
	3,078
Received during the year	88
In museum June 30, 1910	3,166
Provisional pathological section:	
In museum June 30, 1909	546
Donated	24
In museum June 30, 1910	522
Provisional anatomical section:	
In museum June 30, 1910	378
Photographic section:	
In museum June 30, 1910	2,544

RECAPITULATION.

Specimens in museum June 30, 1909	34,338
Discarded and donated	146
	34,192
Added during the year	166
In museum June 30, 1910	34,358

The following are some of the more interesting specimens in the pathological section, received during the year ending June 30, 1910:

Malformations.—Specimen 14156, a hemiteras at 6½ months; donated by Dr. Mary Parsons, Washington, D. C. Specimen 14116, a twin fetus at 6 months and its fellow, the development of which had ceased at about the fourth month; donated by Dr. R. A. Logan, Washington, D. C. Specimen 14115, a papyraceous fetus at about the third

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month, delivered at term with a fully developed fetus; donated by Dr. L. Tayler-Jones, Washington, D. C.

Parasites.—Specimen 14154, trichina spiralis in human biceps muscle; donated by Dr. Maude Abbott, Montreal, Canada. Specimen 14152, fluke worms from human subjects; donated by Dr. Max Askanazy, Geneva, Switzerland.

Injuries.—Specimen 14093, a shot fracture of thoracic vertebræ and corresponding ribs with destruction of spinal cord, from a soldier who died two minutes after the injury; donated by Maj. C. P. Robbins, Medical Corps, U. S. Army. Specimen 14107, shot fracture of bones of leg; amputation; donated by Dr. E. P. Magruder, Washington, D. C. Specimen 14141, shot perforation of lung; from a soldier; death from hemorrhage into the pleura; donated by Lieut. Howard Priest, Medical Reserve Corps. Specimen 14118, laceration of thoracic spinal cord by a fall; from a soldier; laminectomy was done, but he died of ascending myelitis; donated by Lieut. Col. William Stephenson, Medical Corps, U. S. Army.

Dysentery.—Specimen 14096, colon from case of amebic dysentery; donated by Capt. H. J. Nichols, Medical Corps, U. S. Army. Specimen 14138, colon from case of amebic dysentery; there was an amebic abscess of the liver; donated by First Lieut. Howard Priest, Medical Reserve Corps. Specimen 14092, colon from a case of acute specific dysentery; received from the Board for Study of Tropical Diseases. Specimen 14091, colon from case of acute specific dysentery, in a soldier; from the Board for Study of Tropical Diseases.

Pellagra.—Specimen 14095, showing the lesions of the hands; donated by Capt. H. J. Nichols, Medical Corps, U. S. Army.

Madura foot.—Specimen 14122; from a Filipino, age 25; amputation of leg; from the Board for Study of Tropical Diseases.

Brain.—Specimen 14090, showing tuberculosis; donated by Dr. G. N. Acker, Washington, D. C.

Thyroid gland.—Specimen 14119, adenoma; removed from a man, age 47; donated by Dr. E. M. Hasbrouck, Washington, D. C.

Diaphragmatic hernia.—Specimen 14094; donated by Dr. J. W. Mitchell, Peoria, Ill.

Greater omentum.—Specimen 14102, cancer; removed from woman, age 52, by operation; donated by Dr. E. M. Hasbrouck, Washington, D. C.

Stomach.—Specimens 14111 to 14114, sarcoma of stomach, left kidney, spleen, and lung, limited to left side of body; right side not affected; from a man, age 67; donated by Dr. G. C. Ober, Washington, D. C. Specimen 14120, cancer of pylorus; gastroenterostomy was done; from a man, age 47; donated by Dr. W. G. Morgan, Washington, D. C.

Intestines.—Specimen 14131, stricture of the ileum, apparently syphilitic; donated by First Lieut. Howard Priest, Medical Reserve Corps, U. S. Army. Specimen 14135, tubercular ulceration and perforation of the ileum; death from septic peritonitis; donated also by Lieutenant Priest. Specimen 14144, tumor of colon that sloughed into the bowel; soldier; 14145 is a sago spleen from the same case; donated by Maj. W. D. Webb, Medical Corps, U. S. Army. Specimen 14087, adonema of colon, removed from soldier by operation; recovery; donated by Capt. B. H. Dutcher, Medical Corps, U. S. Army.

Liver.—Specimen 14139, amyloid degeneration consecutive to tuberculosis of bones of pelvis; donated by First Lieut. Howard Priest, Medical Reserve Corps.

Pancreas.—Specimen 14150 and 14151, acute hemorrhagic inflammation; from a man, age 60; donated by Dr. G. T. Vaughan, Washington, D. C.

Spleen.—Specimen 14097, spleen much enlarged, weight 7 pounds 9 ounces; from a case of leukemia; removed after death; donated by Lieut. Col. W. D. Crosby, Medical Corps, U. S. Army. Specimen 14148, large spleen from case of Banti's disease; donated by Dr. J. F. Mitchell, Washington, D. C.

Kidney.—Specimens 14088 and 14089, kidney and large calculus removed because of pyelonephritis; donated by Dr. J. T. Kelley, Washington, D. C. Specimen 14158, miliary abscesses of kidney; from a case of puerperal metritis; donated by Dr. D. S. Lamb, Army Medical Museum.

Urethra.—Specimen 14142, phosphatic calculus removed from urethra of Filipino; donated by Capt. W. A. Powell, Medical Corps, U. S. Army.

Testes.—Specimen 14103, gumma; removed from soldier; recovery; donated by Capt. H. F. Pipes, Medical Corps, U. S. Army. Specimen 14101, dermoid cyst of testis, removed by operation; donated by Dr. W. P. Carr, Washington, D. C.

Uterus.—Specimen 14155, uterus cordiformis, with embryo; removed by operation; donated by Dr. S. R. Karpeles, Washington, D. C.

Round ligament.—Specimen 14104, cyst of round ligament; removed by operation; donated by Dr. S. R. Karpeles.

Orbit.—Specimen 14086, sarcoma of orbit; removed by operation; donated by Dr. V. H. Esch, Washington, D. C.

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Ear.—Specimen 14098, chronic otitis media; temporal bone trephined because of abscess and infecting sinusitis; secondary abscess of lung, 14099; donated by Dr. W. K. Butler, Washington, D. C.

In the anatomical section there were received five preparations, specimens 4099 to 4103, showing artificial injection of blood vessels; made and donated by Dr. Edmond Souchon, New Orleans, La.

In the miscellaneous section were the following: Specimen 3225, model of window tent devised by Dr. S. A. Knopf, of New York City. Specimen 3229, a series of type mosquitoes, donated by Dr. C. S. Ludlow. Specimen 3266, the improved water sterilizer of Maj. Carl R. Darnall, Medical Corps, U. S. Army; and 3268, the Ozone water sterilizer apparatus made by Siemens & Halske, Berlin, Germany. Specimens 3239, model of the McCall incinerator, made by J. H. McCall, Huntington, Tenn.; 3242, model of a unit of the Lewis & Kitchen incinerator; 3252, model of the Conley incinerator; 3269, a unit, full size, of the United States Incinerator Company, donated by the company. Specimens 3243 and 3244, old hypodermic syringes, donated by Traux & Co., Chicago, Ill.; 3245, an old hypodermic syringe, donated by Dr. H. C. Yarrow, Washington, D. C.; and a series of old and more recent hypodermic syringes, 3271 to 3302 and 3306 to 3312, purchased. Specimens of old firearms; 3249, wheelock musket; 3250, matchlock musket; 3251, crossbow; 3258, matchlock pistol; 3259, wheelock pistol; 3260, flintlock pistol; 3261, Remington revolver, 1868; all purchased. Also 3247, Springfield musket, model of 1862, and 3248, Springfield smoothbore, 1830; from Springfield Armory.

ARTIFICIAL LIMBS AND APPARATUS.

Under the laws relating to artificial limbs and apparatus, or commutation therefor, orders on manufacturers were given during the fiscal year for 13 artificial legs and 1 foot. Commutation certificates were issued for 154 cases of amputated leg, 108 of amputated arm, 9 of amputated foot, and 1,991 cases of loss of use of limb.

Under the act of June 17, 1870, and subsequent amendments thereto, 23,355 disabled soldiers and sailors have been furnished artificial limbs, or apparatus, or have received commutation in money as follows: Total number benefited to June 30, 1910, 23,746; died, 12,533; dropped from rolls, 592; rejected after one or more payments, 568; remaining on rolls at the end of the fiscal year, 10,053.

Two-thirds of the periodical claims for the benefits under the artificial-limb laws for the three years ending June 30, 1914, become due in the fiscal year 1912. To meet these claims it is estimated that the sum of $330,000 will be required.

APPLIANCES AND TRUSSES.

One hundred and forty-seven appliances were issued during the fiscal year and 516 trusses were furnished and fitted.

MISCELLANEOUS.

WORK OF MEDICAL OFFICERS.

Among the notable activities of medical officers should be noted the appearance of a valuable treatise entitled "Medical service in campaign," by Maj. Paul F. Straub, Medical Corps (General Staff). This work covers a field heretofore unoccupied among works of this character in English, and will prove of great professional service in the instruction of medical officers in the higher grades in the special administrative work which will come to them in time of war.

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PELLAGRA.

As the result of a request from Dr. George A. Zeller, superintendent of the Illinois state hospital for the insane, Peoria, Ill., and Dr. James A. Egan, secretary of the state board of health of Illinois, to the Surgeon-General of the Army, Capt. Joseph F. Siler and Capt. Henry J. Nichols, Medical Corps, received orders from the War Department in the latter part of August, 1909, to proceed to Peoria, Ill., for the purpose of studying pellagra which had made its appearance among the inmates of the Peoria state hospital. A study of the disease, continuing for more than a month, was made in conjunction with Dr. W. H. Buhley, of Chicago, with the state health authorities, and with the members of the medical staff of the institution. The following is a summary made by Captains Siler and Nichols:

1. Of 2,150 inmates of the Peoria institution, the majority of whom have been almshouse and asylum inmates for many years, 175 were pellagrous during the summer of 1909. No physicians, attendants, or employees were affected.
2. About 70 per cent of cases had suffered from previous attacks and pellagra has been prevalent at least four years.
3. The average age of cases was 50 years; the sex distribution was about equal.
4. Attacks were mild (skin symptoms, mild digestive tract symptoms without constitutional reaction) and severe (marked skin and digestive tract symptoms with pronounced toxæmia).
5. A diagnosis of pellagra is not warranted in absence of skin symptoms. The symmetry of skin lesions was a most striking feature. When bleb formation occurred the death rate was high.
6. Digestive tract symptoms were not present in all cases. In some cases diarrhea and stomatitis could be attributed to bad teeth and infection with amœbæ and flagellates, but in other cases the constitutional symptoms pointed to some additional specific poison.
7. Patellar and plantar reflexes were abnormal in about three-fourths of the cases, usually increased.
8. It was impossible to determine the exact extent of mental disturbance attributable to pellagra, as all patients were insane before the disease was recognized. The cases developed no suicidal tendencies.
9. Mild cases recovered without therapeutic aid. Severe cases were not much benefited by Fowler's solution, atoxyl or thyroid tablets.
10. Fæces; 84.8 per cent cases showed protozoal infection (amœbæ, flagellate, and encysted forms). These protozoal infections account in part for the intestinal symptoms and are believed to be a predisposing factor.
11. In 18 autopsies, well marked ulcerations of the colon were found in 12 cases, and folliculitis occurred in all. No other organs showed any constant or striking alteration.
12. Cultures of blood, spinal fluid, and of spleen pulp were uniformly negative.
13. The disease impressed us as an intoxication rather than an infection.
14. Not more than 2 ounces of corn was eaten per day; no evidence was obtained of the use of spoiled corn.
15. The possibility of an intoxication from bacterial action on corn products in a damaged intestine is considered the most promising field for study.

OBSERVATIONS IN THE REPUBLIC OF LIBERIA.

Maj. Percy M. Ashburn, Medical Corps, was a member of the commission of the United States of America to the Republic of Liberia in 1909. The following are extracts from his interesting report:

MEDICAL CONDITIONS.

The medical conditions in Liberia are deplorable in the extreme, the amount of preventable or relievable suffering very great, and the mortality undoubtedly much higher than it should be.

This state of affairs is due to several causes, chief among which may be mentioned the total absence, from most parts of the country, of skilled or educated medical men,

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with consequent nontreatment or mistreatment of many cases of illness; climatic and sanitary conditions; ignorance of hygiene; and superstition.

My knowledge of the diseases of the country is based on what I have read as to those of neighboring colonies, such as Sierra Leone, French West Africa, and Angola, on conversations with medical men and other citizens, and on the cases that I saw in a free clinic which I ran for about fifteen days, and in which I examined, on the average, about 40 cases a day.

Unfortunately, lack of time and the loss in New York of the large and complete medical equipment that I had planned to take to Liberia prevented my observations of cases from being as thorough as could be desired and almost precluded me from making the collections of harmful or disease-bearing insects and from undertaking the investigations that I had hoped to make.

From the sources cited I learn that the following diseases are more or less prevalent, in addition to many others, some of which are found in temperate climates:

Eye.—Cataract seems unduly common. Practically all varieties of eye diseases seem to occur.

Nose, throat, and ear.—Catarrhal troubles of these parts are common, often resulting in middle ear suppuration with its sequelæ.

Mouth.—The teeth of the people are generally good, but lack of dentists and of proper treatment when disease does start results in much unnecessary suffering.

Respiratory organs.—Pneumonia, pleurisy, bronchitis, and pulmonary tuberculosis all occur with some frequency.

Heart and vessels.—Valvular heart lesions of various kinds were encountered. Several cases of myocarditis of unknown origin and several of old hemiplegia and arteriosclerosis were seen.

Alimentary tract.—Gastric indigestion is very common and is probably due principally to the excessive use of such foods as palm butter and oil, peanuts, and "dumboy," a pasty mass prepared from beaten cassava and swallowed in lumps the size of a walnut or larger. "Biliousness" is complained of by nearly everyone. Dysentery occurs with some frequency. Hemorrhoids and anal fistula seemed unduly common and I saw one very marked case of recto-vesical fistula.

Genito-urinary system.—Venereal disease, especially gonorrhea, is exceedingly common, and, as the trouble is untreated or improperly treated in practically all instances, the sequelæ are numerous and there is a sadly large amount of suffering from stricture and inflammation of the bladder, the prostate gland, the testicles, etc., in the male and from inflammations of the bladder, womb, Fallopian tubes, and ovaries in the female as a result. The importance and dangers of the disease are not realized, in spite of the abundant evidence on all sides, and marital and other innocent infections are therefore unduly common. Chancroids occur, though not so frequently as gonorrhea. I saw but two recognized cases of syphilis. In the male, lymph scrotum and hydrocele are both seen rather frequently.

Virility seems to be preserved to a greater age than in whites. In the female fibroid tumors of the uterus and troubles consequent on lacerations of the pelvic floor or infections during childbirth are common. Miscarriages are very common, being usually due, I think, to uterine infections or malaria. Numerous pregnancies but small surviving families seem, according to my limited observations, the rule.

Infant mortality is high and is largely due, I think, to malaria and improper feeding.

Hernia is exceedingly common. A large proportion of children, probably a majority, have umbilical hernia, but, as relatively few adults have it, it must in most instances undergo spontaneous cure. Inguinal hernias are common among men, and, as neither trusses nor operations are used for their control or cure, they often attain to very large size, produce serious invalidism, and must cause quite a number of deaths.

Skin diseases are common, the most prevalent, after prickly heat, being various forms of ringworm or fungus infections, craw-craw, and certain papular eruptions, and dermal infiltrations that tend to ulcerate and result in scarring and pigmentation.

Leucoderma is often seen, the white patches following in the wake of a form of ringworm.

A certain dry, scaly, diffuse, itchy eruption is common. Elephantiasis is not uncommon, and I saw 8 cases in Monrovia.

Yaws is said to occur, but I saw no cases.

Leg ulcers of various types are extraordinarily common.

Nervous disorders are not infrequently seen. Peripheral neuritis, probably due in most instances to alcohol or malaria, is rather frequently seen, while neuralgias, usually of a supraorbital, an intercostal, or the sciatic nerves, are often met. They are frequently of malarial origin and are relieved by quinine. Some cases are probably rheumatic.

I saw one case of spastic paraplegia.

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Muscular rheumatism, especially lumbago, is very common, and is probably somewhat related to the use of too much clothing and the consequent excess of perspiration.

Joint troubles, especially chronic rheumatism and rheumatoid arthritis, were seen rather frequently.

Intestinal parasites are rather common. I had no opportunities to identify species, but had applicants for treatment for pinworms, roundworms, and tapeworms.

Parasites of the skin and connective tissues.—Infection of the skin by larval flies is probably rather common, as I heard of many cases, though I saw none. Chiggers are quite common among the natives.

Itch is not common, and lice do not seem to be so prevalent as would be expected.

Filariasis occurs and is probably very prevalent. In one of the few bloods I examined I found *mf. diurna*.

Guinea worms occur, though I saw no cases.

Malaria is probably the greatest scourge of the country, and it produces many more deaths, much more invalidism, and greater impairment of the efficiency of the people, than does gonorrhea, probably its closest competitor.

It is trite among the Liberians to say that they have fever or "the fever," and they seem to regard it in general as a necessary, if disagreeable, part of life. But even they do not recognize the general prevalence of the disease, as many of its manifestations are regarded as separate and distinct diseases. The badly infected children are regarded as suffering from "the spleen," or as being "just puny;" malarial neuralgias are usually considered pleurisy, heart disease, headache, etc., while severe malarial paroxysms may be spoken of as "an attack of the bile."

In my opinion it is safe to say that quite 90 per cent, and possibly all, of the population of Monrovia have malaria. Both simple tertian and estivo-autumnal forms are seen, and quartan may be present. Two, or possibly three, of our party became infected with malaria, in spite of the care exercised to avoid it.

Sleeping sickness probably occurs in all parts of the Republic, and, considering its uniform fatality, it is dangerously common. I saw 8 cases of what I considered, and what was believed by the sick persons to be, sleeping sickness. Six of these cases came from Arthington, a small farming community up the St. Paul River. Cases are from time to time imported from other parts, but all but one of those that I saw certainly originated in Liberia. I heard of several cases that I did not see.

A fly, commonly called in Liberia the mangrove fly, is much dreaded for its bite. I secured one specimen and am of the present opinion that it is *Glossina-palpalis*, one of the tse-tse flies, and the probable carrier of sleeping sickness in Liberia.

Blackwater fever occurs all along the coast. I saw no cases of it.

Yellow fever, I was told, has not been seen since twelve years ago, when a single case was imported.

Relapsing fever is not recognized, if it occurs.

* * * * * * *

Medical practice.—So far as I have been able to learn, there are at present but two graduated physicians in Liberia, one at Monrovia and one at Lower Buchanan. Both are native Africans, graduated from Meharry Medical College, in Tennessee. Doctor Green, an American negro, graduated from the University of Pennsylvania, left Monrovia during our stay there. Because of lack of opportunity, lack of money, or for other reasons, the great mass of Liberian people are without competent medical attention throughout their lives, with the result that they suffer unduly and die prematurely in great numbers, or survive to endure invalidism from troubles that are preventable or curable. Surgery is apparently unknown, except for minor injuries, and tumors, hydroceles, hernias, inflammatory foci, etc., become crippling or fatal troubles.

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Ideas as to cause of disease.—Very few of the Liberians have ever heard that mosquitos transmit malaria, that tse-tse flies may carry sleeping sickness, and the most of the other accepted facts of modern medicine; and of the few who have heard them, many, if not the majority, disbelieve the facts. I was informed from various and credible sources that not 1 person in 10 is believed to die a natural death, the fatal disease in the other 90 per cent being ascribed to poisoning, witchcraft, evil spells, etc. A district commissioner informed me that he had been poisoned by having a powder sprinkled on his legs while he slept, and that ever since, for a period of many years, he had had a live and moving animal in his stomach, although a native woman had by treatment removed from his legs a number of snakes, toads, worms, and hairballs, and thereby cured those members.

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Dyspepsia is widespread, but instead of being attributed to the diet of palm oil and masses of dumboy, it is very often thought to be due to the presence in the stomach of a

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snake or toad, and in proof of the belief the sufferers will state that they can see or feel the animal move, that they have vomited its eggs or seed, or possibly its young, or that they know the person who poisoned them and caused the trouble.

Many of the more enlightened persons who reject such beliefs have fixed ideas of their own as to the causes of disease, such as that malaria is due to minerals in the drinking water, blackwater fever to the use of whisky, sleeping sickness to the use of a certain variety of cassava.

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Sanitary conditions.—The civilized Liberians are housed much like the blacks in the United States. The houses are built as they or their ancestry learned to build them here and are built of brick or frame. Even the best lack plumbing and running water. The natives live in round or square houses made of wattles plastered with mud from the termite hills, the termites giving it a smoothness and cohesiveness it did not otherwise have. These houses or huts have dirt floors and palm-thatched roofs. A fire is kept going inside much of the time and the cooking is done there. Most of the houses have but one opening, a wooden door, which is kept closed at night. This and the fire and smoke within probably keep the mosquitoes and other insects reduced in numbers. The natives dress suitably for the climate, as a rule, the dress varying from a loin cloth to a long coat or skirt of country cloth, a heavy, durable, cotton fabric of their own make.

The Americo-Liberians in general dress much too heavily. In a very moist and hot climate they attempt to and do, as nearly as possible, dress as they would in New York or London. Long broadcloth coats, trousers, and waistcoats, stiff white shirts, patent-leather shoes, and silk hats constitute the outer attire of the dressed-up man. In addition to these he usually wears, if he can afford it, woolen underclothing and, in rainy weather, a rain coat. The women dress quite as warmly as the men, and flannel underclothing, corsets, numerous skirts, and waists keep them in a semimacerated state much of the time. The light and attractive summer wear used by men and women in America is very little used in Liberia. I think it probable that a part of the poor health and inefficiency of Liberians is due to excess of clothing.

The drinking-water supply of Liberia is derived principally from wells and running streams and it is probably often bad. Rain water, though abundant, is little used for drinking. It is easier and cheaper to dig a well than to build a cistern.

There is no sewerage system anywhere in Liberia. Privies are in use in all the towns and settlements of Liberians. The natives defecate on the surface of the ground. Either the civilized or native system subjects the water of near-by wells to suspicion.

The policing of both houses and towns is surprisingly good. Both are usually very clean, and the absence of trash, refuse, and bad odors gives one a pleasing surprise. This is true of both civilized and native settlements. It is probable that a part of the cleanliness of the civilized towns was due to special efforts made for the reception of the commission, but this remark could hardly apply to the native towns that we saw. Probably partly because of this cleanliness flies, mosquitoes, rats, and other vermin were very little in evidence about the towns and houses.

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CLERICAL SERVICE.

Before concluding my second annual report I desire to say a few words with reference to the efficiency of the clerical force of my office. Their work is kept uniformly in hand and up to date, and the manner in which it is done speaks well for the competency of the personnel employed upon it. Much of it is complicated and intricate, and demands for its successful performance capacity of high order. I am glad to state that all such demands during the past year have been fully honored. In that connection the inadequacy of the compensation provided by law for the clerical civil service of the Government may pertinently be noticed. The grades of salaries now current were established more than half a century ago, when the cost of living was appreciably less. The enhanced prices at which practically all the daily necessaries of life are sold at the present time, as compared with the prices current immediately preceding the civil war, diminish the purchasing equivalent of the salaries then established, and thus

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accomplish by indirection a reduction in their real value. This reduction has been accompanied by a material increase in the hours of labor exacted of the employees, as well as by material restrictions in the leaves of absence formerly allowed them; and although no suggestion is intended that the hours are excessive, or that the leaves are not sufficiently liberal, nevertheless the increase in hours and the restrictions on leaves, imposed during a period when the purchasing value of the salaries has been progressively depreciating, are factors that deserve consideration in discussing the question of compensation. It should be borne in mind also that while the civil servant of the Government has thus been required to render increasing service for a diminishing wage, his fellow-laborer in private life has fared quite differently. Where compensation is fixed by agreement and not by law it is of course more readily adjusted to the state of the times; and accordingly, as is a matter of common knowledge, although the hours of labor required of persons in private employment have been much diminished and the conditions of their employment greatly ameliorated during the last half century, their wages have nevertheless shown a constant advance. This is conspicuously true of those branches of labor which enjoy the right to organize, a right no doubt properly denied to public servants in their capacity as such. The Government should not, however, because its employees are forbidden to organize, become a laggard in readjusting wages to the cost of living. The example set by private employers in this respect deserves emulation moreover, not merely as a matter of justice to the many obscure but faithful employees of the Government whose aptitude, intelligence, and diligence are enlisted in the execution of its multifarious functions, but in the public interests as well; for it is becoming increasingly difficult to obtain capable recruits for the lower branches of the civil service on account of the greater attractions and opportunities offered by private employment. Young men of advanced education and trained clerical accomplishments are particularly reluctant to take up the civil service as a career. The entrance wage of $75 a month or less, with a probable maximum of $1,800 per annum after years of fruitful and efficient work, is not sufficient to tempt the ambitious and energetic from fields of activity where the initial inducement is greater and the rewards of success are almost illimitable. We find therefore that men having the qualifications of mind and training which make them valuable in any field, and which are as essential in government work as in private business, turn more and more to the latter, and the government service threatens to become largely the refuge of women and of men who lack the training, the energy, and the ambition for private success. I mean no disparagement of the efficiency of our women clerks in those classes of work to which they may be suitably assigned. On the contrary, they are generally willing and diligent workers, and measure up to all the requirements of subordinate clerical duty. But, I must add, they are not as universally as men amenable to the calls of discipline, and as a rule do not exhibit that larger zeal and interest in wider official horizons which would fit them for higher usefulness, even if there were no other reasons why executive responsibility should be spared them. In this office, apart from the chief clerk, the law clerk, and the technical assistants, women comprise 23 per cent of the clerical force. Considering that the business of this office is largely scientific and pro-

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fessional, and that vacancies in the higher executive positions must be filled from among the men clerks, this is a larger proportion than is desirable. Without any disposition whatever to displace or remove any of the women clerks now employed, it is my desire on account of the foregoing to have only men clerks appointed hereafter until such time as a better proportion shall be established. And the men clerks should possess the qualifications above referred to which will lead them in the fullness of time to become available for the higher responsibilities of executive position. Neither incapables nor strangers can be expected to step into vacant positions of this character and fill them acceptably. Such positions require not only intelligence, industry, and general training, but also an accurate comprehension of the principles of administration, and in each branch of the service an intimate acquaintance with its details. Every branch of the service should therefore always have at command a body of trained men from whom promotions to such positions can be made. To accomplish this its lower grades must be occupied by men fitted by qualifications to go higher up, and such men can seldom now be secured or retained in the lower grades, at the present rates of pay, against the superior charms of a private career. The Congress has heretofore, in recognition of the great changes in the conditions and cost of living, and of the growing competition of private enterprise for talents which the Government itself needs, felt the justice and necessity of providing larger compensation for certain classes of officials and employees. It has granted an increase of 50 per cent in the pay of its own members, and a considerable increase in the compensation of many of its own immediate officers. It has increased substantially the compensation of nearly if not quite all the members of the judiciary. In the executive branch it has increased the compensation of the President and of the members of his Cabinet 50 per cent and given gratifying and large increases to most of their assistants; it has given substantial increases to the rank and file of the military and naval establishments; it has, as I understand, made generous increases also in the pay of many classes of employees serving in the country at large; and it has made satisfactory additions here and there to the salaries of some of the employees in Washington. But for the most part the salaries of the lower grades of government employment in this city remain on the level where they were placed before the civil war. The Keep Commission, after a thorough and exhaustive investigation into this whole matter a few years ago, found a very real necessity for the readjustment of salaries in Washington and recommended an entirely practicable remedy in the premises. The adoption of some such scheme is, it appears to me, a matter of the gravest importance toward the continuance of an efficient personnel. Some discussion of the cognate question of the superannuation of civil employees may also be deemed pertinent. This office has perhaps been fortunate in having suffered little burden from its elderly and aged employees. The majority of the clerks of advanced years came into this office in the full tide of youth shortly after the close of the civil war, nearly all of them either directly or indirectly from the army. Their military experience and familiarity with army customs, methods, and principles have lent the greatest value to their work. They have grown old in the service; and age has in some instances dimmed the keenness of their faculties or

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diminished the vigor of their industry. Most of them are of the highest usefulness, and by reason of their natural gifts, experience, and continued efficiency are kept in the positions of greatest trust and responsibility. Their absence record compares favorably with that of their younger colleagues, while their capacity as a rule remains unimpaired. In some cases it has been found necessary in their own interest as well as in that of the service to assign them to less onerous tasks with which their failing powers were better able to cope; and this has been accompanied by an appropriate reduction of grade and pay, a procedure which is distressing alike to those who must cause such reductions and to those who suffer by them. But these veterans, even at the reduced pay, still were able to earn a livelihood. I am bound to admit, however, that one or two instances have come to my notice where men enfeebled by disease and the infirmities of age have after long service been unable to continue the performance of duty of any character, and under the law have, after a brief indulgence of leave, found themselves dropped from the rolls. Few men in the lower grades of public service in Washington, having due regard to the great cost of the comforts of life, of the decent maintenance of their families, and of the education of their children, are able to make adequate provision for an unproductive old age. When therefore such disability comes to these old men, as it will to some, it appears a harsh reward for a lifetime's service to throw them out upon the cold sympathies of the world. Suitable provision for their last years is a fair call of humanity. At the same time it would serve a valuable public purpose as well, for it would attract to and retain in the service of the Government a class of employees of exceptional capacity, who, without such inducement, now turn to a private career, because of the greater opportunities there found for the accumulation of a reasonable competency for their old age.

FINANCIAL STATEMENT, 1910.[a]

Medical and hospital department, 1910.

Appropriated by act approved March 3, 1909		$700,000.00
Transfer to this head made by the Treasury Department to correct a disbursing error, from "Medical and hospital department, 1909"	$79.50	
Other refundments during the year	10.09	
		89.59
Total to be accounted for		700,089.59
Disbursed during the year:		
Expenses of medical supply depots	$782.93	
Medical and hospital supplies	386,287.86	
Medical attendance and medicines (except at recruiting stations)	9,270.17	
Medical expenses of recruiting (including medical attendance and medicines at recruiting stations)	6,205.70	
Pay of nurses	606.93	
Pay of other employees	143,047.52	
Hospital laundry	35,890.40	
Expressage	312.81	
Notary fees	35.52	
Gas and electricity for medical apparatus	114.62	
Miscellaneous	4.60	
		582,559.06

[a] The "disbursements" in this statement include settlements with public creditors made by the accounting officers of the Treasury and charged by them to these appropriations.

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Transfer by the Treasury Department to "Medical and hospital department, 1909," to correct a disbursing error		$22.33
Balances on hand June 30, 1910:		
In United States Treasury	$35,885.08	
In transit from disbursing officers to Treasury	2,001.69	
In transit from Treasury to disbursing officers	66,500.00	
In hands of disbursing officers—		
New York City	54.78	
Washington, D. C.	5,820.86	
St. Louis	2,464.88	
San Francisco	1,089.97	
Honolulu, Hawaii	118.74	
Manila, P. I.	3,572.20	
		117,508.20
Total accounted for		700,089.59

Medical and hospital department, 1909.

Balance on hand July 1, 1909, act May 11, 1908		$151,573.16
Transfers made by the Treasury Department from other appropriations to this head to correct disbursing errors	$119.00	
Other refundments during the year	8.00	
		127.00
Total to be accounted for		151,700.16
Disbursed during the year:		
Expenses of medical supply depots	$185.96	
Medical and hospital supplies	131,026.70	
Medical attendance and medicines (except at recruiting stations)	4,305.90	
Medical expenses of recruiting (including medical attendance and medicines at recruiting stations)	1,023.66	
Pay of nurses	50.00	
Pay of other employees	2,049.45	
Hospital laundry	4,534.42	
Expressage	10.00	
Notary fees	1.32	
Gas and electricity for medical apparatus	50.93	
		143,238.34
Transfer by the Treasury Department to "Medical and hospital department, 1910," to correct a disbursing error		79.50
Balance on hand June 30, 1910, in United States Treasury		8,382.32
Total accounted for		151,700.16

Medical and hospital department, 1908.

Balance on hand July 1, 1909, act March 2, 1907		$627.63
Disbursed during the year:		
Medical and hospital supplies	$3.03	
Medical attendance (not at recruiting stations)	65.65	
		68.68
Transfer by the Treasury Department to "Medical and hospital department, 1909," to correct a disbursing error		6.67
Carried to surplus fund		552.28
Total accounted for		627.63

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Replacing medical supplies, 1910–11 (act June 12, 1906, 34 Stats., 256).

Amounts accruing to this fund:		
A. On account of supplies transferred to—		
Engineer Department, U. S. Army	$280.00	
Quartermaster's Department, U. S. Army	6.24	
Board of Road Commissioners, Alaska	31.67	
Isthmian Canal Commission	18,418.26	
Navy and Marine Corps	1,442.31	
Forest Service	177.50	
States, for the use of the militia	31,109.07	
		$51,465.05
B. On account of supplies sold to—		
States, for the use of the militia	309.50	
Civil government, Philippine Islands	476.01	
Civilian employees and civilians	2,634.84	
		3,420.35
C. On account of collections from carriers and others for medical property lost or destroyed		525.23
Total to be accounted for		55,410.63
Transfer by Treasury Department to "Replacing medical supplies, 1909–10," to correct erroneous deposit		1.42
Balance on hand in United States Treasury June 30, 1910		55,409.21
Total accounted for		55,410.63

Replacing medical supplies, 1909–10.

Balance on hand July 1, 1909		$41,869.55
Amounts accruing to this fund:		
A. On account of supplies transferred to—		
Engineer Department, U. S. Army	$893.08	
Quartermaster's Department, U. S. Army	5.40	
Isthmian Canal Commission	28.48	
Navy	164.44	
States, for the use of the militia	3,704.45	
		4,795.85
B. On account of supplies sold to—		
States, for the use of the militia	8.26	
Civil government, Philippine Islands	38.96	
Civilian employees and civilians	429.50	
		476.72
C. On account of collections from carriers and others for medical property lost or destroyed		58.18
Transfer by the Treasury Department from "Replacing medical supplies, 1910–11," to correct erroneous deposit		1.42
Total to be accounted for		47,201.72
Disbursed during the year		21,561.69
Balances on hand June 30, 1910:		
In United States Treasury	$3.20	
In hands of disbursing officer, New York City	25,636.83	
		25,640.03
Total accounted for		47,201.72

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Replacing medical supplies, 1908–9.

Balance on hand July 1, 1909		$3,883.00
Amounts accruing to this fund:		
On account of collections from carriers for property lost or destroyed	$1.69	
On account of collection from contractor, damages for non-performance of contract	68.00	
		69.69
Total to be accounted for		3,952.69
Disbursed during the year		3,951.00
Balance in United States Treasury June 30, 1910		1.69
Total accounted for		3,952.69

Replacing medical supplies, 1907–8.

Balance on hand July 1, 1909	$33.11
Carried to surplus fund	33.11

Replacing medical supplies destroyed by fire, 1910–11.

Appropriated by act approved June 25, 1910	$367,000.00
Balance in United States Treasury June 30, 1910	367,000.00

Replacing medical supplies destroyed by fire, 1909–10.

Balance on hand July 1, 1909, act March 4, 1909	$50,000.00
Disbursed during the year	37,183.57
Balance in hands of disbursing officer, New York City, June 30, 1910	12,816.43

Field medical equipment.

Balance on hand July 1, 1909, act May 11, 1908	$84.00
Disbursed during the year	84.00

Library, Surgeon-General's Office, 1910.

Appropriated by act approved March 3, 1909		$10,000.00
Disbursed during the year		7,103.04
Balances on hand June 30, 1910:		
In United States Treasury	$448.37	
In hands of disbursing officer, Washington, D. C.	2,448.59	
		2,896.96

Library, Surgeon-General's Office, 1909.

Balance on hand July 1, 1909, act May 11, 1908	$4,082.85
Refundment during the year, to correct disbursing error	.01
Total to be accounted for	4,082.86
Disbursed during the year	3,921.97
Balance in United States Treasury June 30, 1910	160.89

Library, Surgeon-General's Office, 1908.

Balance on hand July 1, 1909, act March 2, 1907	$524.21
Carried to surplus fund	524.21

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Army Medical Museum, 1910.

Appropriated by act approved March 3, 1909		$5,000.00
Disbursed during the year		3,420.22
Balances on hand June 30, 1910:		
In United States Treasury	$203.95	
In hands of disbursing officer, Washington, D. C.	1,375.83	
		1,579.78

Army Medical Museum, 1909.

Balance on hand July 1, 1909, act May 11, 1908	$1,846.90
Disbursed during the year	1,664.38
Transferred by Treasury Department to "Medical and hospital department, 1909," to correct a disbursing error	90.00
Balance in United States Treasury June 30, 1910	92.52
Total accounted for	1,846.90

Army Medical Museum, 1908.

Balance on hand July 1, 1909, act March 2, 1907	$407.38
Carried to surplus fund	407.38

Artificial limbs, 1910.

Appropriated by act approved March 4, 1909		$132,000.00
Disbursed during the year		116,629.65
Balance on hand June 30, 1910:		
In United States Treasury	$11,828.35	
In hands of disbursing officer, Washington, D. C.	3,542.00	
		15,370.35

Artificial limbs, 1909.

Balance on hand July 1, 1909, act May 27, 1908	$50,986.65
Disbursed during the year	4,689.14
Balance, June 30, 1910, in United States Treasury	46,297.51

Artificial limbs, 1908.

Balance on hand July 1, 1909, act March 4, 1907	$19,783.56
Disbursed during the year	89.09
Carried to surplus fund	19,694.47

Appliances for disabled soldiers, 1910.

Appropriated by act approved March 4, 1909		$2,000.00
Disbursed during the year		1,101.88
Balances on hand June 30, 1910:		
In United States Treasury	$700.00	
In hands of disbursing officer, Washington, D. C.	198.12	
		898.12

Appliances for disabled soldiers, 1909.

Balance on hand July 1, 1909, act May 27, 1908	$646.70
Disbursed during the year	117.76
Balance in United States Treasury June 30, 1910	528.94

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Appliances for disabled soldiers, 1908.

Balance on hand July 1, 1909, act March 4, 1907		$686.99
Carried to surplus fund		686.99

Trusses for disabled soldiers, 1910.

Appropriated by act approved March 4, 1909		$6,000.00
Disbursed during the year		3,400.68
Balances on hand June 30, 1910:		
In United States Treasury	$2,200.00	
In hands of disbursing officer, Washington, D. C.	399.32	
		2,599.32

Furnishing trusses to disabled soldiers, indefinite appropriation (secs. 1176, 1177, and 1178, R. S., and act of March 3, 1879).

Balance on hand July 1, 1909	$350.23
Drawn during the year	30.61
Total to be accounted for	380.84
Disbursed during the year (on account of obligations incurred prior to July 1, 1909)	380.84

General summary of all appropriations.

Balances on hand July 1, 1909	$327,385.92
Appropriated	1,222,030.61
Proceeds of sales, etc., accruing to replacing funds, act June 12, 1906 (34 Stats., 256)	60,811.07
Refundments during the year	18.10
Total to be accounted for	1,610,245.70
Disbursed during the year	931,164.99
Carried to surplus fund	21,898.44
Balances on hand June 30, 1910	657,182.27
Total accounted for	1,610,245.70

VITAL STATISTICS.

The following tables show in detail most of the statistical data upon which the statements in this report are based:

58. Surgical operations performed on American troops.

59. Numerical view of the effect of disease and injury on United States troops serving at home and abroad in the year 1909, compared with corresponding data for the year 1908, by races.

60. Admissions to sick report, discharges, and deaths in the army, with ratios per 1,000 of mean strength, in which all available data for the period 1899–1908 are placed in comparison with the year 1909.

61. Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, year 1909, for officers and total enlisted of the army.

62. Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for American troops, of the army, white, colored, and total, for the year 1909.

63. Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, United

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States continental, excluding Alaska, and separately for white and colored troops serving therein.

64. Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, Alaska, Cuba, and Hawaii.

65. Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, American troops, white, colored, and total, serving in the Philippine Islands.

66. Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, year 1909, for American troops on transports and for native Porto Rican and Filipino troops.

67. Total movement of sick for the United States Army at home compared with that of foreign armies.

68. A comparison of the admission and death rates of the United States Army at home for certain special diseases with those of foreign armies.

69. A comparison of the most important diseases by departments, United States.

70. Movement of sick American troops of the army by years, 1905–1909.

71. Influence of disease in the army by length of service, age, and arms of service, year 1909.

Very respectfully,

GEO. H. TORNEY,
Surgeon-General, U. S. Army.

The SECRETARY OF WAR.

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APPENDED PAPERS—STATISTICAL TABLES.

TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909.*

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Eye.										
Enucleation of eye	Gunshot wound of eye	1	1	...	...	...	1	...	...	...	...
Do	Rupture of eyeball	1	1	...	...	...	...	1	...	...	...
Do	Panophthalmitis, gonorrheal	2	2	...	...	...	1	1	...	...	...
Do 1 Iridectomy 1	Glaucoma	2	2	...	...	...	...	2	...	...	...
Do	Opacity of cornea	1	1	...	...	...	...	...	...	1	...
Do 3 Suturing of cornea and sclera 1	Laceration of eyeball	4	4	...	...	...	...	...	...	4	...
External canthotomy	Ophthalmia, gonorrheal	1	1	...	...	...	...	1	...	...	...
Extraction	Cataract	1	1	...	...	...	...	...	...	1	...
Desmarres' transplantation 4 Excision and suture 2 Fuch's operation 1 Arlt's operation 1 Excision 12	Pterygium	20	20	...	...	...	...	1	...	19	...
Tenotomy of external rectus 3 Shortening of internal rectus 1	External strabismus	4	4	...	...	...	1	...	...	3	...
Tenotomy of superior rectus	Hypertropia	1	1	...	...	...	...	...	...	1	...
Dilatation of ducts	Dacryo-cystitis	1	...	1	...	...	...	1	...	...	...
Expression	Trachoma	8	8	...	...	...	...	5	...	3	...
Do	Chronic follicular conjunctivitis.	4	4	...	...	...	...	...	...	4	...
Pagenstecher's operation	Ptosis	1	1	...	...	...	...	...	...	1	...
Division of scar tissue	Ectropion lower lid	1	1	...	...	...	...	...	...	1	...
Incision and curettage	Chalazion	11	11	...	...	...	...	1	...	10	...
Excision	Ocular cyst	3	3	...	...	...	...	...	...	2	1
Do	Cyst of lid	1	1	...	...	...	...	...	...	1	...
Do	Papilloma tous growth of lid	2	2	...	...	...	...	...	...	2	...
Extraction	Foreign body imbedded in cornea.	10	10	...	...	...	...	1	...	9	...
	Ear.										
Schwartz operation 1 Mastoidotomy and curettage 3 Mastoidotomy 11	Mastoiditis	15	14	1	...	...	5	9	...	1	...
Incision of tympanum 17 Incision over mastoid 1 Mastoidotomy 1 Paracentesis 2	Otitis media	21	21	...	...	...	...	1	...	18	2
Incision and drainage	Abscess, external ear	6	6	...	...	...	...	...	...	6	...
Excision	Polypus, external meatus	3	3	...	...	...	...	...	...	2	1
Do	Supernumerary cartilage right ear, hereditary.	1	1	...	...	...	...	1	...	...	...
Suturing and drainage	Ear partially torn from head.	1	1	...	...	...	...	...	...	1	...
	Nose.										
Submucous resection	Deflection of septum	4	4	...	...	...	...	...	...	4	...
Do 15 Ash's operation 1	Deviation of septum	16	16	...	...	...	...	...	...	16	...
Turbinectomy 29 Cauterization 7	Hypertrophy of turbinates	36	36	...	...	...	...	...	...	36	...
Do	Chronic spheno-ethmoiditis.	1	1	...	...	...	...	...	...	1	...
Incision and drainage	Abscess of nasal fossa	1	1	...	...	...	...	...	...	1	...
Excision and cauterization, 4; excision by cold snare, 7.	Polypus	11	11	...	...	...	...	...	...	11	...
Excision	Septal spur	13	13	...	...	...	...	...	...	13	...
Excision by curet and forceps.	Adenoids, naso-pharyngeal	116	116	...	...	...	...	7	...	109	...
	Mouth and pharynx.										
Removal of both bicuspids, and excision.	Epulis, right superior maxilla.	1	1	...	...	...	...	...	...	1	...
Incision and drainage	Ludwig's angina	1	1	...	...	...	1	...	...	...	...

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Mouth and pharynx—Cont'd.										
Excision	Old scar on tongue	1	1	...	...	...	...	...	...	1	...
Do	Epithelioma of palate	1	1	...	...	...	...	...	...	1	...
Do	Papillomata, soft palate	11	11	...	...	...	...	...	...	11	...
Do	Uvulaptosis	5	5	...	...	...	...	...	...	5	...
Tonsillectomy	Tuberculosis of tonsil	1	1	...	...	...	...	...	...	1	...
Do 78 Excision by dissection 126 Tonsillectomy 93 Excision by dissection 6	Hypertrophy of tonsil	204	204	...	...	...	...	5	...	180	19
	Tonsillitis	99	99	...	...	...	...	28	2	48	21
Excision	Adenoids	10	10	...	...	...	...	5	...	4	1
	Neck and thorax.										
Suturing in three layers	Incised wound of neck, opening into pharynx.	1	1	...	...	...	...	...	...	...	1
Suturing	Incised wound of neck, involving epiglottis and pharynx, suicidal.	1	1	...	...	...	...	...	...	...	1
Tracheotomy	Edema of glottis	1	...	...	...	1	...	...	...	...	1
Do	Diphtheria, laryngeal	1	...	...	...	1	...	...	...	...	1
Thyroidectomy, right lobe and isthmus.	Goiter	1	1	...	...	...	...	1	...	...	...
Thyroidectomy, partial left lobe.	Goiter recurrent	1	1	...	...	...	...	1	...	...	...
Thoracotomy and rib resection.	Abscess of lung	1	1	...	...	...	...	1	...	...	...
Do 10 Thoracotomy 6 Paracentesis 2 Aspiration 18	Empyema	16	12	1	..	3	4	7	...	5	...
	Pleurisy with effusion	20	20	...	...	...	...	...	...	13	7
Incision	Suspected pleuritic effusion.	1	...	...	1	...	...	...	...	1	...
	Abdomen.										
Suturing of wound	Incised wound of abdomen, opening peritoneum.	1	1	...	...	...	1	...	...	...	...
Repair by suturing	Laceration of jejunum	1	...	...	...	1	...	...	1	...	...
Exploratory laparotomy and drainage.	Penetrating wound of abdomen and thorax.	1	...	...	...	1	...	1	...	...	...
Exploration of peritoneum	Gunshot wound of abdomen.	1	...	...	...	1	...	1	...	...	...
Exploratory operation on abdominal wall.	....do	1	1	...	...	...	...	1	...	...	...
Laparotomy and liberation	Adhesions, multiple, of intestines.	1	1	...	...	...	...	1	...	...	...
Laparotomy	Intestinal obstruction	1	1	...	...	...	...	1	...	...	...
Laparotomy and drainage 2 Exploratory laparotomy 1	Peritonitis	3	2	...	...	1	...	2	1	...	...
Laparotomy, and irrigation of abdominal cavity with salt solution.	Tubercular peritonitis	1	...	...	1	...	...	1	...	...	...
Exploratory laparotomy, median incision above umbilicus, closure of perforation by suture, counter opening in right iliac region with drainage in right kidney pouch and pelvis.	Perforating ulcer of stomach followed by peritonitis.	1	1	...	...	...	...	...	1	...	...
Laparotomy, repair, and drainage.	Perforating ulcer of intestine during course of typhoid fever.	1	1	...	...	...	1	...	...	...	...
Laparotomy and packing to control hemorrhage.	Rupture of liver	1	...	...	...	1	...	1	...	...	...
Manson's operation 1 Rib resection, axilliary line 2 Thoracic route, 9th intercostal space 2 Evacuation and packing 1 Incision and drainage 13 Puncture and drainage 1 Exploratory incision 2	Abscess of liver	22	13	3	1	5	5	17	...	...	...

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	***Abdomen*—Continued.**										
Cholecystotomy..... 5 Cholecystotomy and separation of adhesions.... 2 Exploratory cholecystotomy..... 2	Cholecystitis.....	9	8	...	...	1	1	8	...	...	...
Appendectomy and drainage of gall bladder.	Cholecystitis gangrenous, and appendicitis from extension of inflammation from gall bladder.	1	1	...	...	...	1	...	...	...	...
Exploratory abdominal section.	Suspected cholecystitis.....	1	1	...	...	...	...	1	...	...	...
Cholecystostomy.....	Gallstones	1	1	...	...	...	1	...	...	...	...
Cholecystotomy, evacuation of pus and gallstones, and drainage.	Cholelithiasis with empyema of gall bladder.	1	1	...	...	...	...	1	...	...	...
Exploratory laparotomy....	Suspected gallstones	1	1	...	...	...	...	1	...	...	...
Do.....	Hydrops of gall bladder.....	1	1	...	...	...	...	1	...	...	...
Tapping.....	Cirrhosis of liver.....	1	1	...	...	...	...	...	...	...	1
Appendectomy, Dawborn's method..... 1 Appendectomy, McBurney's gridiron incision.. 2 Appendectomy, right rectus incision..... 8 Appendectomy, muscle-splitting operation..... 2 Appendectomy, no technique stated.....159 Excision of old laparotomy scar and drainage.. 1 Incision and drainage.... 1	Appendicitis.....	174	170	...	...	4	21	147	6	...	...
Do.....	Appendiceal abscess.....	2	2	...	...	...	...	2	...	...	...
Do.....	Abscess, following operation for appendicitis.	1	1	...	...	...	...	1	...	...	...
Excision.....	Fistula at site of an appendectomy.	1	1	...	...	...	1	...	...	...	...
Resection of sinus	Sinus, following an appendectomy.	1	1	...	...	...	...	1	...	...	...
Appendicostomy..... 5 Appendicostomy, gridiron incision..... 1 Bassini's operation..... 97 Bassini's modified operation..... 32 Bassini's and McMacerven's operation..... 1 Ferguson's operation.... 11 Ferguson's modified operation..... 12 Andrews's modification of Ferguson's operation.. 1 Halstead's operation.... 3 Johns Hopkins's operation..... 1 Johns Hopkins's modified operation..... 1 Stacke's operation..... 1 Suturing of conjoined tendon and Poupart's ligament with interrupted suture..... 1 Suturing of internal ring. 1 Injection of tincture of iodine into inguinal canal and pressure applied to same..... 1 Operation not stated..... 8	Chronic amebic dysentery...	6	4	2	...	...	1	5	...	...	...
	Inguinal hernia.....	171	164	5	1	[a] 1	25	132	12	2	...

[a] Died of abscess of lung.

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Abdomen—Continued.										
Bassini's operation 2 Ferguson's operation 1	Inguinal hernia, recurrent	3	3				1	2			
Bassini's operation 1 Mayo's operation 1 Excision of sac, closure with layer suture 1 Operation not stated 1	Ventral hernia	4	4				1	3			
Excision of scar and suturing of abdominal walls 1 Excision of scar, breaking up of adhesions, and closing each layer separately with double flap fascia 1	Ventral hernia, following a laparotomy.	2	2					2			
Greig Smith's modified operation.	Umbilical hernia	1	1					1			
Bassini's operation	Femoral hernia	3	3					2	1		
Sigmoidectomy	Adenoma	1	1					1			
Incision and drainage	Abscess, postcecal	1	1					1			
Evacuation	Abscess, abdominal	1	1					1			
Laparotomy	For diagnostic purposes, no disease stated.	2	2					2			
	Anus and rectum.										
Dilatation and cauterization 1 Dilatation and curettage 1	Ulcer of rectum	2	2				1	1			
Incision and curettage	Fistula of rectum, chronic	2	2				2				
Cauterization	Prolapse of rectum	1	1					1			
Excision	Polypus of rectum	1	1							1	
Incision and drainage	Abscess of rectum	2	2					1			1
Do 45 Incision and curettage 12 Do	Ischio-rectal abscess	57	57				7	16	2	25	7
	Ischio-rectal sinus	3	2	1				1		2	
Incision and drainage Do 9 Incision and curettage 1	Ischio-rectal fistula Peri-rectal abscess	1 10	1 10							1 2	
Divulsion of sphincter and curettage of ulcer.	Fissure of anus, with ulcer of rectum.	1	1				1				
Dilatation of stricture, and excision and curettage of fistula.	Stricture of rectum and fistula in ano.	1	1				1				
Fistulous tract laid open by incision through sphincter, and curettage 26 Multiple incisions and curettage 2 Curettage and packing 2 Excision 5	Fistula in ano	35	34	1			4	23	1	5	2
Curettage	Ulcer of anus	1	1					1			
Dilatation 1 Dilatation and curettage 2	Fissure of anus	3	3					2		1	
Excision	Polypus of anus	1	1							1	
Cauterization 2 Excision 68 Excision and cauterization 6 Incision and evacuation of clot 26 Clamp and cautery 61 Clamp cautery and ligature 7 Excision and suture 22 Ligation 24 Ligation and excision 46 Incision and curettage 1 Allingham's operation 10 Mitchell's operation 4 Pilcher's operation 6 Whitehead's operation 5	Hemorrhoids	288	288				40	144	19	76	9

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Genito-urinary system.										
Orchidectomy	Hypertrophy and fibroid degeneration of testicle.	1	1	...	...	...	1	...	...	...	...
	Tuberculosis of testicle	2	2	...	...	...	1	1	...	...	...
	Suspected tuberculosis of testicle.	1	1	...	...	...	1	...	...	...	...
	Orchitis, acute	3	3	...	...	...	...	3	...	...	...
	Undescended testicle	2	2	...	...	...	...	...	...	2	...
	Gumma, gangrenous of testicle.	1	1	...	...	...	...	1	...	...	...
Supra-pubic excision .... 83 Scrotal excision ..... 3 Excision, site not stated. 33 Ablation of scrotum ..... 1 Bennett's operation ..... 3 Von Bergmann's operation ..... 3 Radical operation ..... 1 Ligation ..... 1 Excision of tunic ..... 14 Inversion and partial excision ..... 8 Incision and drainage .... 7 Andrews's operation ..... 5 Volkman's operation .... 2 Bottle operation ..... 1 Modified bottle operation. 2 Jaboulay's operation .... 1 Open operation ..... 1 Eversion of tunic ..... 1 Incision and packing .... 1 Tapping 4	Varicocele	128	128	...	...	...	21	90	1	15	1
Extirpation Excision of suppurating area. Excision of mass	Hydrocele	47	46	...	1	...	3	29	...	12	3
	Tumor of testicle	2	2	...	...	...	1	...	...	1	...
	Abscess of testicle	1	1	...	...	...	...	1	...	...	...
	Lymphangitis, filarial, inguinal portion of spermatic cord.	1	1	...	...	...	...	1	...	...	...
Incision and drainage .... 5 Epididymectomy ..... 8 Hagner's operation ..... 5 Belfield's basotomy 1	Epididymitis	19	19	...	...	...	1	15	1	2	...
Epididymectomy	Hypertrophy of epididymis.	3	3	...	...	...	...	3	...	...	...
Incision and drainage	Abscess of epididymis	2	2	...	...	...	...	...	...	1	1
Removal by anterior scrotal incision.	Cyst head of epididymis	1	1	...	...	...	...	1	...	...	...
Nephrectomy	Rupture of kidney	2	1	...	...	1	1	1	...	...	...
Do	Pyelonephritis	1	1	...	...	...	...	1	...	...	...
Nephrotomy	Renal calculus	1	1	...	...	...	...	1	...	...	...
Exploratory incision and palpation of kidney, negative for calculi.	Pyelitis	1	1	...	...	...	...	1	...	...	...
	Perinephritic abscess	2	2	...	...	...	...	2	...	...	...
Laparotomy and cystorrhaphy.	Rupture of bladder	1	1	...	...	...	...	...	1	...	...
Perineal cystotomy	Vesical calculus	1	1	...	...	...	...	1	...	...	...
Do	Cystitis	2	1	...	1	...	...	1	...	1	...
Supra-pubic cystotomy, combined with external perineal urethrotomy.	Rupture of urethra	1	1	...	...	...	...	1	...	...	...
Perineal section	Perineal abscess	4	4	...	...	...	2	...	...	2	...
Excision of fistulous tract and suture of urethra, and skin surface ..... 1 Incision and curettage ... 2 Incision and cautery ..... 2 Incision and curettage ... 1	Fistula of urethra	5	5	...	...	...	...	1	1	3	...
Incision and drainage .... 5 Urethrotomy 1	Periurethral abscess	7	7	...	...	...	...	...	1	5	1

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Genito-urinary system—Con.										
Rapid dilatation ..... 2 Internal urethrotomy.... 12	Stricture of urethra.....	14	14	...	...	...	...	6	...	7	1
Meatotomy.....	Stricture of meatus.....	6	6	...	...	...	...	...	...	5	1
Restoration by incision through cicatrix.	Cicatricial obliteration of meatus.	1	1	...	...	...	...	...	...	1	...
Szymanowski's operation....	Hypospadias.....	1	...	...	1	...	...	1	...	...	...
Circumcision.....	Phimosis and paraphimosis..... 207 Elongated prepuce, and redundant prepuce... 139 Venereal disease..... 40 Malformation of prepuce 2 Balanitis..... 6	394	394	...	...	...	44	35	5	310	...
Excision..... 3 Curettage and cautery.... 1	Venereal warts.....	4	2	...	2	...	...	2	...	2	...
Excision anterior part of scrotum, and of subcutaneous tissue of penis and scrotum.	Chronic lymphangitis of penis and scrotum.	1	1	...	...	...	...	1	...	...	...
Incision and drainage.....	Abscess of scrotum.....	1	1	...	...	...	...	...	1	...	...
Removal of cyst contents and sac.	Cyst of scrotum.....	1	1	...	...	...	...	1	...	...	...
Ablation.....	Redundant scrotum.....	1	1	...	...	...	...	1	...	...	...
	Vascular system.										
Incision and ligation.....	Artereal aneurism base of brain.	1	1	...	...	...	...	1	...	...	...
Ligation.....	Injury to brachial artery....	1	1	...	...	...	...	1	...	...	...
Do.....	Injury to radial artery.....	2	2	...	...	...	...	...	...	...	2
Do.....	Injury to super-palmar arch.	1	1	...	...	...	...	1	...	...	...
Do.....	Injury to tibialis anticus artery.	1	1	...	...	...	...	1	...	...	...
Excision of vein.....	Thrombo-phlebitis.....	1	1	...	...	...	...	1	...	...	...
Schede's operation..... 1 Excision..... 8 Multiple ligation..... 14 Ligation and excision.... 7 Excision and avulsion... 1 Ligation of veins, and removal in sections..... 1	Varicose veins.....	32	32	...	...	...	3	23	1	5	...
	Nervous system.										
Neuroplasty.....	Punctured wound, severing external popliteal nerve.	1	1	...	...	...	...	1	...	...	...
Laminectomy fifth and sixth dorsal vertebræ.	Paraplegia below umbilicus.	1	1	...	...	...	...	...	1	...	...
	Skin and cellular tissues.										
Incision and curettage.....	Tubercular abscess, neck....	1	1	...	...	...	...	1	...	...	...
Do.....	Tubercular sinus.....	1	1	...	...	...	...	1	...	...	...
Do..... 2 Excision of fistulous tract. 1	Fistula.....	3	3	...	...	...	1	...	...	2	...
Incision and drainage.....	Sinus.....	3	3	...	...	...	...	1	...	2	...
Do..... 33 Excision..... 1	Cellulitis.....	34	34	...	...	...	2	2	...	20	10
Multiple incision.....	Streptococcus infection.....	2	2	...	...	...	2	...	...	...	...
Incision and drainage... 234 Incision and curettage.. 7 Do..... 6	Abscess.....	241	236	3	1	[a] 1	9	25	2	134	71
Incision and drainage..... 7	Carbuncle.....	13	13	...	...	...	...	2	...	4	7
Do.....	Whitlow.....	1	1	...	...	...	...	1	...	...	...
Do.....	Felon.....	9	9	...	...	...	...	1	...	7	1
Removal of nail and incision to bone.	Pus infection, great toe.....	1	1	...	...	...	...	1	...	...	...

[a] Died of pyemia.

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Skin and cellular tissues—Continued.										
Skin grafting (Thiersch)	Ulcerated area due to burn	1	1				1				
Skin grafting	Old contusion of ankle	1	1				1				
Curettage	Ulcer	2	2							2	
Cotting's operation 20 Keller's operation 9 Anger's operation 7 Excision 108 Partial excision of nail and matrix 15 Avulsion and removal of matrix 7	Ingrowing toe nail	166	165	1			2	8	10	139	7
Removal of nail	Onychauxis	1	1							1	
Removal of scar tissue and formation of skin flaps 1 Dissection of scar 5	Cicatrix	6	5		1			4		2	
Removal by blunt dissection	Callus	1		1				1			
Excision	Nevus	1	1							1	
Do	Pigmented mole	1	1					1			
Abscission	Tattoo mark on chin	1	1								1
	Lymphatic system.										
Excision of gland	Glandular tuberculosis of jaw	1	1				1				
Excision 6 Incision and drainage 2 Incision and curettage 1	Adenitis, cervical	9	9					5		3	1
Incision 2 in. long anterior border and 2½ in. long posterior border, sternomastoid 1 Excision 5	Adenitis, tubercular cervical	6	5	1			2	4			
Do	Adenitis tubercular, site not stated.	1	1					1			
Incision and drainage 4 Incision and curettage 4	Adenitis, axillary	8	8					2		3	3
Incision and drainage 339 Incision and curettage 225 Excision of gland 188 Curettage and injection 5 Incision and packing 1	Adenitis inguinal venereal 625 Adenitis inguinal non-venereal 54 Adenitis inguinal, character not stated 79	758	756		2		41	274	21	369	53
Curettage and injection 5 Excision of gland 4 Incision and drainage 6	Adenitis, character and site not stated.	15	15				2	10		3	
	Muscles, tendons, fasciæ, ligaments and bursæ.										
Tenorrhaphy	Incised wound, extensor communis digitorum.	1	1							1	
	Incised wound, wrist	2	2				1				1
	Severed tendons, hand	1	1				1				
	Divided tendon	3	3					1			2
	Incised wound, index finger	1	1				1				
Tenorrhaphy, tendon extensor longus digitorum.	Incised wound of foot	1	1							1	
Tenotomy flexor tendons second, third, and fourth toes 1 Tenotomy flexor tendons 1 Subcutaneous division of lateral and glenoid ligaments 2	Hammer toe	4	4				2		1		1
Hardie's operation	Dupuytren's contraction	1		1				1			
Separation of adhesions and passive motion.	Adhesions, extensor tendons left foot.	1	1					1			

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Table No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Muscles, tendons, fasciæ, ligaments and bursæ—Con.										
Incision	Rigid flexion of toe	1	1							1	
Incision and replacement	Dislocation of tendon	1		1			1				
Excision	Rider's bone, tendon of adductor longus.	1	1					1			
Tenotomy	Hypertrophy of tendon	3	3							3	
Excision of scars, and uniting of fascia.	Hernia of muscle, name not stated.	2	2				2				
Suturing sheath of muscle	Hernia of adductor longus	1	1					1			
Suturing and drainage	Severed muscle	2	2							2	
Exploratory incision	Myositis	1	1					1			
Excision	Ganglion	7	7					3		3	1
Incision and drainage 5 Incision and curettage 2 Dissection of sac 4	Bursitis	11	8	3				6		4	1
Partial excision, distal end first metatarsal 2 Keller's operation 1 Excision 9	Bunion	12	12				1	7		4	
	Bones.										
Trephining, and removal of clots and fragments of bone 3 Removal of bone fragments 2	Fracture of skull (3 by gunshot)	5	1			4	2	1			
Exploratory incision of scalp	Suspected fracture of skull	1	1								1
Setting fracture and wiring	Fracture of inferior maxilla	5	5					3		1	1
Osteotomy and removal of sharp fragments.	Fracture of clavicle	1	1				1				
Wiring	Fracture of ulna and radius, faulty union.	1	1					1			
Removal of bone fragments	Gunshot wound of hand	1		1				1			
Incision and drainage	Periostitis of finger	2	2							2	
	Osteo-arthritis of finger	1	1							1	
Excision of tumor and drainage.	Osteo-sarcoma fourth rib	1	1					1			
Removal of necrotic bone and excision of sinus.	Osteomyelitis, tubercular, of rib, with discharging sinus.	1	1							1	
Excision of bone spiculae	Fracture of femur (1 by gunshot).	2	2				2				
Removal by forceps and curet, of bone fragments, in false joint.	Old fracture of femur by gunshot.	1	1					1			
Periosteotomy	Osteo-periostitis, femur	1			1		1				
Mediate suture 4 Fragments united by kangaroo tendon and silver wire 1 Fragments united by ligature 1	Fracture of patella	6	3	2	1			6			
Incision setting and wiring	Fracture both bones of leg	2	2				1		1		
Removal of overlapping ends both fragments, and approximation 1 Subcutaneous tenotomy tendo-Achilles, breaking and resetting tibia 1	Simple fracture both bones of leg, with vicious union	2			2			2			
Exploratory incision	Old fracture both bones of leg with faulty union.	1	1				1				
Exposing site of fracture, freshening ends of tibia, and nailing with silver nails.	Ununited fracture both bones of leg.	1		1				1			
Removal of small tubercular periosteal growth.	Osteo-periostitis, tubercular, right tibia.	1	1				1				

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Bones—Continued.										
Incision and curettage	Osteitis, tubercular tibia	1	1					1			
Do	Osteo-periostitis tibia	1	1							1	
Do	Periostitis of tibia	1	1					1			
Removal of dead bone by curet.	Necrosis of tibia and fibula	1	1					1			
Curettage	Necrosis of tibia	1		1				1			
Exploratory operation, extensor tendons, lower third right leg.	Convalescing from operation for suspected necrosis of tibia.	1			1					1	
Excision of necrotic area	Necrosis, bone not stated	6	6				1	3		2	
Osteotomy 6 Exploratory operation 1	Exostosis	7	5	1	1		3	3		1	
	Joints.										
Incision and reduction	Dislocation of malar bone	1	1					1			
Resection of joint	Old gunshot wound elbow joint, with resulting ankylosis.	1	1					1			
Aspiration	Synovitis, elbow joint	1	1								1
Do	Synovitis, gonorrheal, of knee joint.	1	1								1
Do	Synovitis traumatic, joint not stated.	1			1						1
Incision and removal	Floating cartilage, knee joint.	2	2				1			1	
Removal, head of metatarsal bone.	Talipes valgus	1	1				1				
Excision proximal end first phalanx and removal of exostosis 3 Keller's operation 1 Weir's tendon transplantation 5	Hallux valgus	9	9				2	4	3		
Resection of joint	Dislocation, metatarso-phalangeal joint great toe.	1	1					1			
Division of adhesions	Ankylosis, metatarso-phalangeal joint great toe.	1		1				1			
Excision	Exostosis distal end of first metatarsal bone.	2	2					2			
	Amputations.										
Amputation at shoulder joint	Gunshot wound of arm (infected).	1				[a]1			1		
Amputation arm, site not stated.	Crushing wound arm, lower third.	1	1					1			
Amputation forearm, site not stated.	Contused wound forearm	1	1					1			
Disarticulation, wrist joint	Laceration radio-carpal joint.	1	1					1			
Amputation at middle third of thigh.	Gunshot wound, lower third thigh.	1	1				1				
Amputation at lower third of thigh.	Tubercular arthritis knee-joint.	1	1					1			
Amputation thigh, site not stated.	Lacerated wound of knee and leg.	1	1					1			
Amputation middle third, leg.	Osteo-sarcoma lower third of tibia.	1	1					1			
Amputation right foot	Gangrene of all toes, result of frostbite.	1	1						1		
Amputation, site not stated	Crushing of foot	1	1					1			
Amputation	Necrosis, limb not stated	1	1					1			
Amputation of finger	Gunshot wound, 8; frostbite, 1; other injury, 26; disease, 7; cause not stated, 8.	50	50				12	23		14	1

[a] Died of septicemia.

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TABLE No. 58.—*Surgical operations performed by officers of the Medical Corps, on officers and enlisted men of the army, during the calendar year 1909*—Continued.

Operation.	Disease or injury.	Cases.	Result.				Anesthetic.				
			Successful.	Partially successful.	Failure.	Died.	Chloroform.	Ether.	Chloroform and ether.	Local.	None.
	Amputations—Continued.										
Amputation of toe	Gunshot wound, 6; other injury, 8; hammer toe, 11; inflamed corn, 1; other disease, 5; cause not stated, 2.	33	33	...	...	...	5	15	...	12	1
	Foreign bodies.										
Incision and extraction	Bullet, 21; jacket of bullet, 1; needle, 2; splinter, 6; fish-hook, 2; piece of oyster shell, 1; bit of copper, 1; bit of iron, 1.	35	32	...	3	...	2	5	...	26	2
Dilatation and removal	Lodgment of bone in rectum.	1	1	...	...	...	1	...	...	...	...
Do	Lodgment of spicula of bone in internal sphincter ani.	1	1	...	...	...	...	1	...	...	...
	Tumors.										
Excision	Adenoma	1	1	...	...	...	...	...	1	...	...
Do	Dermoid cyst	1	1	...	...	...	1	...	...	...	...
Do	Fibroma	5	5	...	...	...	...	2	...	3	...
Removal of metacarpal bone, and index finger.	Fibro-enchondroma	1	1	...	...	...	...	1	...	...	...
Dorsal incision, and removal of mass from third metacarpal.	Fibro-enchondroma, recurrent.	1	...	1	...	...	...	...	...	1	...
Excision	Glandular tumor	1	1	...	...	...	...	1	...	...	...
Incision, removal of clot, and drainage.	Hematoma	2	2	...	...	...	1	...	...	...	1
Amputation	Hypertrophy of breast	1	1	...	...	...	...	1	...	...	...
Excision	Lipoma	6	6	...	...	...	...	1	...	4	1
Do	Myxolipoma	1	1	...	...	...	...	...	...	1	...
Do	Retention cyst	1	1	...	...	...	1	...	...	...	...
Do	Serous cyst	2	2	...	...	...	...	2	...	...	...
Do 39 Incision and cautery 1 Incision and curettage 3	Sebaceous cyst	43	43	...	...	...	1	2	...	34	6
Excision	Tumor, type not stated	2	2	...	...	...	...	1	...	1	...
	Miscellaneous.										
Incision, curettage, and cautery 2 Incision and drainage 12	Infected wound	14	13	...	...	[a]1	4	6	...	4	...
Suturing	Incised wound	18	18	...	...	...	...	...	...	2	16
Suturing and drainage	Lacerated wound	27	27	...	...	...	3	2	...	5	17
Enlarging, cleansing, and packing of wound 1 Incision and cautery 1 Curettage 1	Punctured wound	3	3	...	...	...	...	1	...	1	1
Incision and exploration	Healed wound anterior surface of wrist.	1	1	...	...	...	...	...	...	1	...
Incision and drainage	Erysipelas of scalp	1	1	...	...	...	1	...	...	...	...
Suturing	Stab wounds left lung and both forearms.	1	1	...	...	...	1	...	...	...	...
Uniting radius with silver wire, and remaining structures with kangaroo tendon.	Incised wound forearm, severing skin, extensor tendons, lower end of radius, and disuniting ulna from carpal bones.	1	...	1	...	...	1	...	...	...	...
Ligation branches of arteries, cleansing and suturing of wounds.	Incised bolo wounds, frontal and temporal regions, and of shoulder.	1	...	...	...	1	1	...	...	...	...
Dissection and readjustment of flaps.	Imperfect result in amputation of thigh.	1	1	...	...	...	1	...	...	...	...
Total cases		3,933	3,845	35	23	30	335	1,326	100	1,873	299

[a] Died of septicemia.

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TABLE NO. 59.—*Numerical view of the effect of disease and injury on United States troops serving at home and abroad in the year 1909 compared with corresponding data for the year 1908, by races.*

ABSOLUTE NUMBERS.

		Mean strength.	Admitted.			Discharged on surgeon's certificate of disability.			Died.			Total losses.			Noneffective from sickness.	
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Days treated.	Constantly non-effective.
White troops	1909	71,025	75,824	61,739	14,085	1,213	1,093	120	346	210	136	1,559	1,303	256	1,076,108	2,948.24
	1908	62,263	72,795	58,886	13,909	1,210	1,087	123	373	206	167	1,583	1,293	290	959,650	2,621.99
Colored troops	1909	3,294	3,176	2,615	561	57	53	4	24	18	6	81	71	10	49,225	134.86
	1908	3,143	4,909	4,092	817	38	28	10	41	29	12	79	57	22	62,040	169.51
Porto Rican troops	1909	567	674	617	57	6	5	1	7	4	3	13	9	4	8,906	24.40
	1908	564	701	658	43	4	4	.....	4	3	1	8	7	1	7,641	20.88
Filipino troops	1909	5,369	5,036	4,462	574	80	76	4	41	34	7	121	110	11	68,806	188.51
	1908	5,085	5,378	4,616	762	54	53	1	43	29	14	97	82	15	65,337	178.52

PROPORTIONAL NUMBERS.

		Mean strength.	Admitted.			Discharged on surgeon's certificate of disability.			Died.			Total losses.			Constantly non-effective.	Days treated.	
			Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.	Total.	Disease.	Injury.		Each soldier.	Each case.
White troops	1909	71,025	1,067.57	869.26	198.31	16.82	15.16	1.66	4.80	2.91	1.89	21.62	18.07	3.55	41.51	15.15	14.19
	1908	62,263	1,169.15	945.76	223.39	18.81	16.90	1.91	5.80	3.20	2.60	24.61	20.10	4.51	42.11	15.42	13.18
Colored troops	1909	3,294	964.18	793.87	170.31	17.30	16.09	1.21	7.29	5.46	1.82	24.59	21.55	3.03	40.94	14.94	15.50
	1908	3,143	1,561.88	1,301.94	259.94	11.95	8.81	3.15	12.90	9.12	3.77	24.85	17.93	6.92	53.93	19.74	12.64
Porto Rican troops	1909	567	1,188.71	1,088.18	100.53	10.58	8.82	1.76	12.35	7.05	5.29	22.93	15.87	7.05	43.03	15.71	13.21
	1908	564	1,242.91	1,166.67	76.24	7.09	7.09	.....	7.09	5.32	1.77	14.18	12.41	1.77	37.02	13.55	10.90
Filipino troops	1909	5,369	937.98	831.07	106.91	14.44	13.72	.72	7.40	6.14	1.26	21.84	19.86	1.98	35.11	12.82	13.66
	1908	5,085	1,057.62	907.77	149.85	10.38	10.19	.19	8.26	5.57	2.69	18.64	15.76	2.88	35.11	12.85	12.15

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TABLE No. 60.—*Admissions to sick report, discharges, and deaths, with ratios per 1,000 of mean strength, in which all available data for the period 1899–1908 are placed in comparison with the year 1909.*

Causes of admission to sick report.	United States Army 1899–1908.						American troops, Army 1909.					
Mean strength	S. G. O. 655,000 (mean annual 65,500). A. G. O. 663,438 (mean annual 66,344).						S. G. O. 74,319. A. G. O. 75,399.					
	Admissions.		Discharges.		Deaths.		Admissions.		Discharges.		Deaths.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Typhoid fever	4,709	7.19	25	0.04	498	0.75	267	3.59			19	0.25
Malarial fevers, total	158,900	242.60	165	.25	246	.37	2,855	38.42	1	0.01	2	.03
Intermittent	124,817	190.56	4	.006	3	.005	2,196	29.55				
Aestivo-autumnal	29,329	44.78	3	.005	201	.30	560	7.54			2	.03
Other malarial diseases	4,754	7.26	158	.24	42	.06	99	1.33	1	.01		
Smallpox	527	.80			101	.15	2	.03				
Measles	7,221	11.02	11	.02	92	.14	580	7.80			8	.11
Eruptive fevers, others	1,156	1.76			2	.003	162	2.18			1	.01
Diphtheria	270	.41			10	.02	35	.47			3	.04
Influenza	18,868	28.81			7	.01	2,008	27.02			1	.01
Asiatic cholera	543	.83			319	.48						
Cholera nostras	925	1.41					2	.03				
Dysentery	27,144	41.44	506	.76	859	1.29	675	9.08	5	.07	14	.19
Yellow fever	445	.68			92	.14						
Leprosy	2	.003					1	.01	2	.03	1	.01
Beriberi	60	.09	6	.01	9	.01	3	.04				
Erysipelas	572	.87			12	.02	31	.42	1	.01	2	.03
Dengue	17,126	26.15			1	.002	1,695	22.81			1	.01
Mumps	7,676	11.72					720	9.69				
Cerebrospinal fever, including meningitis	224	.34	22	.03	120	.18	19	.26	2	.03	12	.16
Purulent infection and septicemia	138	.21	5	.01	69	.10	11	.15	1	.01	5	.07
Tuberculosis, all	3,046	4.65	1,612	2.43	457	.69	350	4.70	171	2.27	43	.57
Total venereal	112,255	171.38	2,110	3.18	34	.05	14,640	196.99	206	2.73		
Syphilis and its results	16,054	24.51	1,483	2.24	28	.04	2,263	30.45	122	1.61		
Chancroid and its results	23,781	36.31	30	.05			2,287	30.77				
Gonorrhea and its results	72,420	110.56	597	.90	6	.01	10,090	135.77	84	1.12		
Cancer and other malignant growths	142	.22	28	.04	47	.07	10	.13	4	.05	2	.02
Rheumatism, acute articular	4,994	7.62	24	.04	7	.01	567	7.63	2	.03	1	.01
Rheumatism, subacute and chronic articular	4,367	6.67	380	.57	1	.002	413	5.56	24	.32		
Alcoholism and its results	16,776	25.61	124	.19	148	.22	1,775	23.88	22	.29	7	.09
Insanity	1,125	1.72	910	1.37	7	.01	120	1.62	109	1.45	1	.01
Diseases of the brain and spinal cord	1,563	2.39	423	.64	78	.12	15	.20	8	.11	4	.05

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TABLE No. 60.—*Admissions to sick report, discharges, and deaths, with ratios per 1,000 of mean strength, in which all available data for the period 1899–1908 are placed in comparison with the year 1909*—Continued.

Causes of admission to sick report.	United States Army 1899–1908.						American troops, Army 1909.					
Mean strength	S. G. O. 655,000 (mean annual 65,500). A. G. O. 663,438 (mean annual 66,344).						S. G. O. 74,319. A. G. O. 75,399.					
	Admissions.		Discharges.		Deaths.		Admissions.		Discharges.		Deaths.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Tetanus	14	0.02			11	0.02						
Diseases of the heart	3,327	5.08	972	1.47	217	.33	197	2.65	71	0.95	26	0.35
Varicocele	2,789	4.26	70	.11			207	2.79	1	.01		
Adenitis, nonvenereal	4,361	6.66	9	.01			431	5.80				
Lymphangitis	509	.78	9	.01	1	.002	29	.39				
Coryza and other diseases of the nasal fossæ	8,258	12.61	65	.10			1,819	24.47	4	.05		
Bronchitis, acute and chronic	34,774	53.09	60	.09	7	.01	2,521	33.92	3	.04		
Pneumonia, all	2,145	3.27	12	.02	306	.46	175	2.35			25	.33
Pleurisy	2,262	3.45	73	.11	22	.03	190	2.56	10	.13	3	.04
Tonsillitis and other diseases of the pharynx	38,818	59.26	1	.002	3	.005	5,067	68.18	1	.01	1	.01
Gastritis	14,525	22.18	67	.10	21	.03	872	11.73	10	.13		
Diarrhea and enteritis	106,968	163.31	146	.22	186	.28	2,507	33.73	5	.07	2	.03
Peritonitis (simple)	109	.17	7	.01	49	.07	8	.11			1	.01
Inguinal and other herniæ	3,273	5.00	606	.91	3	.005	268	3.60	32	.43		
Appendicitis	2,370	3.62	63	.09	95	.14	347	4.67	7	.09	6	.08
Diseases of the kidneys	1,701	2.60	170	.26	174	.26	125	1.68	18	.23	12	.16
Periostitis	730	1.11	28	.04	1	.002	50	.67	2	.03		
Arthritis and synovitis	4,207	6.42	196	.30			228	3.06	10	.14		
All other diseases	281,497	429.77	4,658	7.02	568	86	22,357	300.82	414	5.49	25	.33
Total for diseases	903,411	1,379.25	13,563	20.44	4,880	7.36	64,354	865.92	1,146	15.20	228	3.02
Total for injuries	142,393	217.39	1,895	2.86	2,321	3.50	14,646	197.07	124	1.64	142	1.88
Grand total	1,045,804	1,596.65	15,458	23.30	7,201	10.85	79,000	1,062.99	1,270	16.84	370	4.90

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TABLE NO. 61.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the army—officers and total enlisted—for the year 1909.*

	Officers U. S. Army.								American troops, army.							
Mean strength	S. G. O., 3,822—A. G. O., 4,283.								S. G. O., 74,319—A. G. O., 75,399.							
Causes of admission to sick report.	Admissions.		Retirement for disability.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Typhoid fever, including paratyphoid fever	11	2.88			1	0.23	2.55	0.67	267	3.59			19	0.25	47.71	0.64
Fevers, undetermined	12	3.14					.18	.05	470	6.32					7.22	.10
Malarial fevers	102	26.69					3.02	.79	2,855	38.42	1	0.01	2	.03	62.38	.84
Intermittent	63	16.48					1.16	.30	2,196	29.55					42.90	.58
Aestivo-autumnal	33	8.63					1.43	.37	560	7.54			2	.03	15.00	.20
Malarial cachexia, and undetermined infection	6	1.57					.43	.11	99	1.33	1	.01			4.48	.06
Smallpox									2	.03					.23	.003
Measles	1	.26					.04	.01	580	7.80			8	.11	36.19	.49
Scarlet fever	1	.26					.19	.05	23	.31			1	.01	1.90	.03
Diphtheria									35	.47			3	.04	1.90	.03
Influenza	195	51.02					3.61	.95	2,008	27.02			1	.01	31.97	.43
Cholera nostras									2	.03					.02	.0003
Dysentery	18	4.71	3	0.70			2.65	.69	675	9.08	5	.07	14	.19	57.16	.77
Amebic	12	3.14	3	.70			2.21	.58	319	4.29	5	.07	3	.04	35.05	.47
Bacillary	2	.52					.24	.06	155	2.09			6	.08	12.05	.16
Mixed infections and other dysenteries	4	1.05					.21	.05	201	2.70			5	.07	10.06	.14
Leprosy									1	.01	2	.03	1	.01	2.13	.03
Beriberi									3	.04					.50	.01
Erysipelas	3	.78					.07	.02	31	.42	1	.01	2	.03	1.64	.02
Dengue	93	24.33					1.88	.49	1,695	22.81			1	.01	29.81	.40
Mumps	7	1.83					.29	.08	720	9.69					30.32	.41
Cerebrospinal meningitis, epidemic									14	.19	2	.03	8	.11	1.57	.02
Yaws (frambesia)									1	.01					.42	.01
Vaccinia	1	.26					.01	.001	1,130	15.20					17.20	.23
Purulent infection and septicemia	3	.78			1	.23	.24	.07	11	.15	1	.01	5	.07	1.05	.01
Trichinosis									1	.01					.28	.004
Tuberculosis (all)	12	3.14	3	.70			11.39	2.98	350	4.70	171	2.27	43	.57	201.93	2.72
Tuberculosis, pulmonary	11	2.88	2	.47			10.96	2.87	297	4.00	160	2.12	35	.46	191.02	2.57
Tuberculosis of other organs	1	.26	1	.23			.43	.11	53	.71	11	.15	8	.11	10.91	.15

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TABLE No. 61.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the army—officers and total enlisted—for the year 1909*—Continued.

	Officers U. S. Army.								American troops, army.							
Mean strength	S. G. O., 3,822—A. G. O., 4,283.								S. G. O., 74,319—A. G. O., 75,399.							
Causes of admission to sick report.	Admissions.		Retirement for disability.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Venereal diseases (all)	34	8.90					3.12	0.82	14,640	196.99	206	2.73			971.25	13.07
Syphilis and its results	7	1.83					.88	.23	2,263	30.45	122	1.62			225.83	3.04
Chancroid and its results	4	1.05					.40	.10	2,287	30.77					134.67	1.81
Gonorrhea and its results	23	6.02					1.83	.48	10,090	135.77	84	1.11			610.75	8.22
Cancer and other malignant growths	1	.26			1	0.23	.89	.23	10	.13	4	.05	2	0.03	1.68	.02
Rheumatism, articular (all)	18	4.71					1.47	.38	980	13.19	26	.34	1	.01	68.09	.91
Rheumatic fever	10	2.62					.42	.11	567	7.63	2	.03	1	.01	34.46	.46
Rheumatism, subacute and chronic, articular	8	2.09					1.05	.28	413	5.56	24	.32			33.63	.45
Alcoholism and its results	23	6.02					.62	.16	1,775	23.88	22	.29	7	.09	23.33	.31
Insanity	2	.52	3	0.70			.54	.14	120	1.61	109	1.45	1	.01	21.07	.28
Epilepsy	1	.26					.01	.001	129	1.74	58	.77			10.46	.14
Trachoma	1	.26					.27	.07	32	.43	4	.05			3.69	.05
Organic disease of the heart	11	2.88	9	2.10	2	.47	2.44	.64	187	2.52	69	.91	26	.34	24.16	.32
Aneurism	1	.26	2	.47	1	.23	.50	.13	9	.12	6	.08	3	.04	2.68	.04
Filariasis	1	.26					.02	.004	2	.03					.29	.004
Chyluria									1	.01					.25	.003
Lymphangitis and elephantoid fever	1	.26					.02	.004								
Other filariasis									1	.01					.03	.0004
Functional diseases of the heart	3	.78	1	.23			.39	.10	178	2.40	23	.31			11.79	.16
Bronchitis, acute and chronic	155	40.55					2.38	.62	2,521	33.92	3	.04			49.33	.66
Broncho-pneumonia	3	.78					.21	.06	21	.28			3	.04	2.17	.03
Pneumonia (pneumonic fever)	4	1.05					.37	.10	154	2.07			22	.29	12.16	.16
Diarrhea and enteritis	127	33.23	1	.23			2.08	.54	2,507	33.73	5	.07	2	.03	38.74	.52
Intestinal parasites	7	1.83					.04	.01	387	5.21	1	.01			7.55	.10
Tenia saginata	2	.52					.01	.002	65	.87					1.08	.01
Tenia solium									31	.42					.44	.01
Hymenolepsis nana									2	.03					.12	.002
Bothriocephalus latus									4	.05					.03	.0004
Ascaris lumbricoides	3	.78					.02	.01	19	.26					.77	.01
Oxyuris vermicularis									2	.03					.02	.0003
Ankylostomum duodenale									136	1.83	1	.01			2.59	.03
Necator Americanus	1	.26					.01	.001	127	1.71					2.49	.03
Other intestinal parasites	1	.26					.01	.001	1	.01					.01	.0001

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Inguinal and other herniæ	12	3.14	1	.23			2.71	.71	268	3.61	32	.42			29.43	.40
Hepatic abscess	2	.52			1	.23	.55	.14	22	.30	1	.01	7	.09	4.79	.06
Appendicitis	31	8.11	1	.23			4.97	1.30	347	4.67	7	.09	6	.08	33.58	.45
Climatic bubo									7	.09					.63	.01
Tropical ulcer	2	.52					.06	.02	23	.31					1.41	.02
Jiggers (pulex penetrans)									10	.13					.24	.003
Pemphigus contagiosus	2	.52					.03	.01	49	.66					1.55	.02
Dhobie itch									212	2.85					4.63	.06
Tenia imbricata									10	.13					.15	.002
Prickly heat									20	.27					.34	.005
Acute nephritis	4	1.05			1	.23	.25	.07	28	.38			5	.07	3.65	.05
Chronic nephritis	21	5.49	1	.23	2	.47	2.44	.64	45	.61	18	.21	7	.09	7.42	.10
Malingering									70	.94					1.97	.03
External causes, special.																
Fractures, exclusive of gunshot	34	8.90	1	.23			4.13	1.08	804	10.82	32	.42	24	.32	99.33	1.34
Dislocations	12	3.14					.99	.26	219	2.95	2	.03			10.16	.14
Sprains and muscular strains	120	31.40					4.15	1.09	4,230	56.92	10	.13			89.29	1.20
Wounds, gunshot	5	1.31	3	.70	2	.47	1.05	.28	215	2.89	18	.24	51	.68	24.63	.33
Wounds other than gunshot	42	10.99					1.69	.44	3,218	43.30	18	.24	7	.09	79.01	1.06
Sunstroke	1	.26					.03	.01	7	.09	1	.01			.36	.004
Frostbite and general freezing	1	.26					.01	.001	85	1.14	3	.04			2.10	.03
Drowning													28	.37		
Poisoning, acute	12	3.14					.19	.05	315	4.24			11	.15	3.28	.04
Venomous bites, etc	8	2.09					.09	.02	86	1.16					1.50	.02
Snake bite									2	.03					.09	.001
Other venomous bites, etc	8	2.09					.09	.02	84	1.13					1.41	.02
Diseases and injuries grouped.																
General diseases	544	142.33	8	1.87	4	.93	34.03	8.90	28,396	382.08	476	6.31	121	1.60	1,612.09	21.69
Infectious diseases	439	114.86	3	.70	1	.23	14.35	3.75	10,387	139.76	11	.15	60	.80	327.97	4.41
Other general diseases	105	27.47	5	1.17	3	.70	19.68	5.15	18,009	242.32	465	6.17	61	.81	1,284.12	17.28
Diseases of the nervous system and organs of special sense	188	49.19	15	3.50	2	.47	17.45	4.57	2,955	39.76	280	3.71	10	.13	153.34	2.06
Of the nervous system	102	26.69	13	3.04	2	.47	12.76	3.34	1,253	16.86	220	2.92	10	.13	84.16	1.13
Of the eye and its adnexa	66	17.27					2.77	.72	1,121	15.08	32	.42			39.96	.54
Of the ear and its adnexa	20	5.23	2	.47			1.92	.50	581	7.82	28	.37			29.22	.39
Diseases of the circulatory system	59	15.44	13	3.04	3	.70	5.11	1.34	1,681	22.62	112	1.49	33	.44	103.01	1.39
Diseases of the respiratory system	314	82.16					7.33	1.92	5,209	70.09	33	.44	29	.38	115.44	1.55
Diseases of the digestive system	601	157.25	4	.93	3	.70	19.13	5.00	14,812	199.30	72	.95	22	.29	317.80	4.28
Diseases of the genito-urinary system	52	13.61	2	.47	3	.70	4.53	1.18	1,050	14.13	51	.68	12	.16	49.63	.67
Diseases of the skin and cellular tissue	120	31.40	2	.47			5.89	1.54	6,512	87.62	9	.12			170.09	2.29
Diseases of the organs of locomotion	99	25.90	1	.23			4.08	1.07	2,308	31.06	41	.54			80.42	1.08
Malformations, etc									130	1.75	71	.94			12.84	.17
Diseases, results of old age			1	.23					1	.01					.02	.0002
Ill-defined diseases	35	9.16					.95	.25	1,300	17.49	1	.01	1	.01	32.81	.44
Total for diseases	2,012	526.43	46	10.74	15	3.50	98.50	25.77	64,354	865.92	1,146	15.20	228	3.02	2,647.49	35.62
External causes	392	102.56	5	1.17	3	.70	17.20	4.50	14,646	197.07	124	1.64	142	1.88	435.61	5.86
Total for diseases and external causes	2,404	628.99	51	11.91	18	4.20	115.70	30.27	79,000	1,062.99	1,270	16.84	370	4.91	3,083.10	41.48

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TABLE No. 62.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, United States Army.*

Causes of admission to sick report.	Army, total.								Army, white.								Army, colored.							
Mean strength	S. G. O., 74,319—A. G. O., 75,399.								S. G. O., 71,025—A. G. O., 72,105.								S. G. O., 3,294—A. G. O., 3,294.							
	Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Typhoid fever (including paratyphoid fever)	267	3.59			19	0.25	47.71	0.64	263	3.70			18	0.25	46.97	0.66	4	1.21			1	0.30	0.74	0.22
Fevers, undetermined	470	6.32					7.22	.10	452	6.36					6.98	.10	18	5.46					.24	.07
Malarial fevers	2,855	38.42	1	0.01	2	.03	62.38	.84	2,734	38.49	1	0.01	2	.03	60.34	.85	121	36.73					2.04	.62
Intermittent	2,196	29.55					42.90	.58	2,092	29.45					41.18	.58	104	31.57					1.72	.52
Aestivo-autumnal	560	7.54			2	.03	15.00	.20	549	7.73			2	.03	14.75	.21	11	3.34					.25	.07
Malarial cachexia and undetermined infection	99	1.33	1	.01			4.48	.06	93	1.31	1	.01			4.40	.06	6	1.82					.08	.02
Smallpox	2	.03					.23	.003	1	.01					.22	.003	1	.30					.01	.003
Measles	580	7.80			8	.11	36.19	.49	580	8.17			8	.11	36.19	.51								
Scarlet fever	23	.31			1	.01	1.90	.03	22	.31			1	.01	1.75	.02	1	.30					.15	.05
Diphtheria	35	.47			3	.04	1.90	.03	35	.49			3	.04	1.85	.03							.05	.02
Influenza	2,008	27.02			1	.01	31.97	.43	2,000	28.16			1	.01	31.81	.45	8	2.43					.16	.05
Cholera nostras	2	.03					.02	.0003	2	.03					.02	.0003								
Dysentery	675	9.08	5	.07	14	.19	57.16	.77	636	8.95	5	.07	13	.18	54.14	.76	39	11.84			1	.30	3.02	.92
Amebic	319	4.29	5	.07	3	.04	35.05	.47	292	4.11	5	.07	2	.03	32.39	.46	27	8.20			1	.30	2.66	.81
Bacillary	155	2.09			6	.08	12.05	.16	150	2.11			6	.08	11.93	.17	5	1.52					.12	.04
Mixed infections and other dysenteries	201	2.70			5	.07	10.06	.14	194	2.73			5	.07	9.82	.14	7	2.13					.24	.07
Leprosy	1	.01	2	.03	1	.01	2.13	.03	1	.01	2	.03	1	.01	2.13	.03								
Beriberi	3	.04					.50	.01	2	.03					.32	.005	1	.30					.18	.05
Erysipelas	31	.42	1	.01	2	.03	1.64	.02	31	.44	1	.01	2	.03	1.64	.02								
Dengue	1,695	22.81			1	.01	29.81	.40	1,637	23.05			1	.01	28.80	.41	58	17.61					1.01	.31
Mumps	720	9.69					30.32	.41	720	10.14					30.31	.43							.01	.004
Cerebrospinal meningitis, epidemic	14	.19	2	.03	8	.11	1.57	.02	14	.20	2	.03	8	.11	1.57	.02								
Yaws (frambesia)	1	.01					.42	.01							.06	.001	1	.30					.36	.11
Vaccinia	1,130	15.20					17.20	.23	1,119	15.76					17.03	.24	11	3.34					.17	.05
Purulent infection and septicemia	11	.15	1	.01	5	.07	1.05	.01	11	.15	1	.01	5	.07	1.05	.01								
Trichinosis	1	.01					.28	.004	1	.01					.28	.003								

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Tuberculosis (all)	350	4.70	171	2.27	43	.57	201.93	2.72	333	4.69	158	2.19	38	.53	188.71	2.66	17	5.16	13	3.95	5	1.52	13.22	4.01
Tuberculosis, pulmonary	297	4.00	160	2.12	35	.46	191.02	2.57	286	4.03	147	2.04	32	.44	178.60	2.51	11	3.34	13	3.95	3	.91	12.42	3.77
Tuberculosis of other organs	53	.71	11	.15	8	.11	10.91	.15	47	.66	11	.15	6	.08	10.11	.15	6	1.82			2	.61	.80	.24
Venereal diseases (all)	14,640	196.99	206	2.73			971.25	13.07	13,714	193.09	190	2.64			917.87	12.92	926	281.12	16	4.86			53.38	16.21
Syphilis and its results	2,263	30.45	122	1.62			225.83	3.04	2,159	30.40	110	1.53			216.27	3.04	104	31.57	12	3.64			9.56	2.90
Chancroid and its results	2,287	30.77					134.67	1.81	2,121	29.86					124.71	1.76	166	50.39					9.96	3.02
Gonorrhea and its results	10,090	135.77	84	1.11			610.75	8.22	9,434	132.83	80	1.11			576.89	8.12	656	199.15	4	1.21			33.86	10.28
Cancer and other malignant growths	10	.13	4	.05	2	.03	1.68	.02	10	.14	4	.06	2	.03	1.59	.02							.09	.03
Rheumatism, articular (all)	980	13.19	26	.34	1	.01	68.09	.91	942	13.26	26	.36	1	.01	66.02	.93	38	11.54					2.07	.63
Rheumatic fever	567	7.63	2	.03	1	.01	34.46	.46	540	7.60	2	.03	1	.01	33.07	.47	27	8.20					1.39	.42
Rheumatism, subacute and chronic, articular	413	5.56	24	.32			33.63	.45	402	5.66	24	.33			32.95	.46	11	3.34					.68	.21
Alcoholism and its results	1,775	23.88	22	.29	7	.09	23.33	.31	1,755	24.71	22	.31	7	.10	23.03	.32	20	6.07					.30	.09
Insanity	120	1.61	109	1.45	1	.01	21.07	.28	114	1.61	101	1.40	1	.01	19.15	.26	6	1.82	8	2.43			1.92	.58
Epilepsy	129	1.74	58	.77			10.46	.14	129	1.82	58	.80			10.46	.15								
Trachoma	32	.43	4	.05			3.69	.05	32	.45	4	.06			3.69	.05								
Organic disease of the heart	187	2.52	69	.91	26	.34	24.16	.32	172	2.42	66	.92	20	.28	21.21	.30	15	4.55	3	.91	6	1.82	2.94	.90
Aneurism	9	.12	6	.08	3	.04	2.68	.04	7	.10	6	.08	3	.04	2.36	.03	2	.61					.33	.10
Filariasis	2	.03					.29	.004	1	.01					.25	.003	1	.30					.03	.01
Chyluria	1	.01					.25	.003	1	.01					.25	.003								
Other filariasis	1	.01					.03	.0004									1	.30					.03	.01
Functional diseases of the heart	178	2.40	23	.31			11.79	.16	177	2.49	23	.32			11.79	.17	1	.30					.01	.002
Bronchitis, acute and chronic	2,521	33 92	3	.04			49.33	.66	2,425	34.14	3	.04			47.79	.67	96	29.14					1.53	.47
Broncho-pneumonia	21	.28			3	.04	2.17	.03	20	.28			3	.04	1.96	.03	1	.30					.21	.06
Pneumonia (pneumonic fever)	154	2.07			22	.29	12.16	.16	140	1.97			20	.28	11.35	.16	14	4.25			2	.61	.81	.25
Diarrhea and enteritis	2,507	33.73	5	.07	2	.03	38.74	.52	2,408	33.90	5	.07	2	.03	37.58	.53	99	30.05					1.15	.35
Intestinal parasites	387	5.21	1	.01			7.55	.10	385	5.42	1	.01			7.48	.11	2	.61					.06	.02
Tenia saginata	65	.87					1.08	.01	65	.92					1.08	.02								
Tenia solium	31	.42					.44	.01	31	.44					.44	.01								
Hymenolepsis nana	2	.03					.12	.002	2	.03					.12	.002								
Bothriocephalus latus	4	.05					.03	.0004	4	.06					.03	.0005								
Ascaris lumbricoides	19	.26					.77	.01	19	.27					.77	.01								
Oxyuris vermicularis	2	.03					.02	.0003	2	.03					.02	.0003								
Ankylostomum duodenale	136	1.83	1	.01			2.59	.03	135	1.90	1	.01			2.56	.04	1	.30					.03	.01
Necator Americanus	127	1.71					2.49	.03	126	1.77					2.45	.03	1	.30					.03	.01
Other intestinal parasites	1	.01					.01	.0001	1	.01					.01	.0001								
Inguinal and other hernia	268	3.61	32	.42			29.43	.40	253	3.56	32	.44			27.88	.39	15	4.55					1.55	.47
Hepatic abscess	22	.30	1	.01	7	.09	4.79	.06	19	.27	1	.01	7	10	4.36	.06	3	.91					.43	.13
Appendicitis	347	4.67	7	.09	6	.08	33.58	.45	332	4.67	7	.10	5	.07	32.41	.46	15	4.55			1	.30	7	.35
Climatic bubo	7	.09					.63	.01	7	.10					.63	.01								
Tropical ulcer	23	.31					1.41	.02	23	.32					1.41	.02								
Jiggers (pulex penetrans)	10	.13					.24	.003	10	.14					.24	.003								
Pemphigus contagiosus	49	.66					1.55	.02	49	.69					1.55	.02								
Dhobie itch	212	2.85					4.63	.06	181	2.55					4.03	.06	31	9.41					.60	.18
Tenia imbricata	10	.13					.15	.002	10	.14					.15	.002								
Prickly heat	20	.27					.34	.005	20	.28					.34	.004								
Acute nephritis	28	.38			5	.07	3.65	.05	28	.39			5	.07	3.65	.05								
Chronic nephritis	45	.61	16	.21	7	.09	7.42	.10	43	.61	14	.19	7	.10	7.27	.10	2	.61	2	.61			.15	.04
Malingering	70	.94					1.97	.03	59	.83					1.43	.02	11	3.34					.54	.16

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TABLE NO. 62.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, United States Army*—Continued.

Causes of admission to sick report.	Army, total.								Army, white.								Army, colored.							
Mean strength	S. G. O., 74,319—A. G. O., 75,399.								S. G. O., 71,025—A. G. O., 72,105.								S. G. O., 3,294—A. G. O., 3,294.							
	Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
External causes, special.																								
Fractures, exclusive of gunshot	804	10.82	32	0.42	24	0.32	99.33	1.34	788	11.09	32	0.44	22	0.31	97.55	1.38	16	4.86	....	....	2	0.61	1.78	0.54
Dislocations	219	2.95	2	.03	....	....	10.16	.14	210	2.96	2	.03	....	....	9.84	.14	9	2.73	....	....	....	....	.33	.10
Sprains and muscular strains	4,230	56.92	10	.13	....	....	89.29	1.20	4,054	57.08	9	.12	....	....	86.52	1.22	176	53.43	1	0.30	....	....	2.77	.84
Wounds, gunshot	215	2.89	18	.24	51	.68	24.63	.33	206	2.90	18	.25	51	.71	23.28	.33	9	2.73	....	....	....	....	1.35	.41
Wounds other than gunshot	3,218	43.30	18	.24	7	.09	79.01	1.06	3,103	43.69	18	.25	6	.08	75.95	1.07	115	34.91	....	....	1	.30	3.07	.94
Sunstroke	7	.09	1	.01	....	....	.36	.004	7	.10	1	.01	....	....	.36	.005	....	....	....	....	....	....	....	....
Frostbite and general freezing	85	1.14	3	.04	....	....	2.10	.03	76	1.07	2	.03	....	....	1.66	.02	9	2.73	1	.30	....	....	.44	.13
Drowning	....	....	....	....	28	.37	....	....	....	....	....	....	28	.39	....	....	....	....	....	....	....	....	....	....
Poisoning, acute	315	4.24	....	....	11	.15	3.28	.04	309	4.35	....	....	9	.12	3.24	.05	6	1.82	....	....	2	.61	.05	.01
Venomous bites, etc.	86	1.16	....	....	....	....	1.50	.02	81	1.14	....	....	....	....	1.43	.02	5	1.52	....	....	....	....	.07	.02
Snake bite	2	.03	....	....	....	....	.09	.001	2	.03	....	....	....	....	.09	.001	....	....	....	....	....	....	....	....
Other venomous bites, etc.	84	1.13	....	....	....	....	1.41	.02	79	1.11	....	....	....	....	1.34	.02	5	1.52	....	....	....	....	.07	.02
Diseases and injuries grouped.																								
General diseases	28,396	382.08	476	6.31	121	1.60	1,612.09	21.69	27,145	382.19	445	6.17	114	1.58	1,533.88	21.60	1,251	379.78	31	9.41	7	2.13	78.21	23.74
Infectious diseases	10,387	139.76	11	.15	60	.80	327.97	4.41	10,139	142.75	11	.15	58	.80	319.96	4.50	248	75.29	....	....	2	.61	8.01	2.43
Other general diseases	18,009	242.32	465	6.17	61	.81	1,284.12	17.28	17,006	239.44	434	6.02	56	.78	1,213.92	17.09	1,003	304.49	31	9.41	5	1.52	70.21	21.31
Diseases of the nervous system and organs of special sense	2,955	39.76	280	3.71	10	.13	153.34	2.06	2,834	39.90	270	3.74	10	.14	146.20	2.06	121	36.74	10	3.04	....	....	7.14	2.17
Of the nervous system	1,253	16.86	220	2.92	10	.13	84.16	1.13	1,186	16.70	210	2.91	10	.14	79.42	1.12	67	20.34	10	3.04	....	....	4.73	1.44
Of the eye and its adnexa	1,121	15.08	32	.42	....	....	39.96	.54	1,082	15.23	32	.44	....	....	37.95	.53	39	11.84	....	....	....	....	2.01	.61
Of the ear and its adnexa	581	7.82	28	.37	....	....	29.22	.39	566	7.97	28	.39	....	....	28.83	.41	15	4.55	....	....	....	....	.39	.12
Diseases of the circulatory system	1,681	22.62	112	1.49	33	.44	103.01	1.39	1,605	22.60	108	1.50	26	.36	97.46	1.37	76	23.07	4	1.21	7	2.13	5.55	1.69
Diseases of the respiratory system	5,209	70.09	33	.44	29	.38	115.44	1.55	4,976	70.06	33	.46	26	.36	109.79	1.55	233	70.73	....	....	3	.91	5.65	1.72
Diseases of the digestive system	14,812	199.30	72	.96	22	.29	317.80	4.28	14,292	201.22	70	.97	21	.29	307.05	4.32	520	157.86	2	.61	1	.30	10.75	3.26

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Diseases of the genito-urinary system	1,050	14.13	51	.68	12	.16	49.63	.67	1,025	14.43	48	.67	12	.17	48.05	.68	25	7.59	3	.91	....	....	1.58	.48
Diseases of the skin and cellular tissue	6,512	87.62	9	.12	....	....	170.09	2.29	6,305	88.77	9	.12	....	....	164.65	2.32	207	62.84	....	....	....	....	5.44	1.65
Diseases of the organs of locomotion	2,308	31.06	41	.54	....	....	80.42	1.08	2,191	30.85	39	.54	....	....	77.77	1.10	117	35.52	2	.61	....	....	2.65	.80
Malformations, etc	130	1.75	71	.94	....	....	12.84	.17	127	1.79	70	.97	....	....	12.10	.17	3	.91	1	.30	....	....	.74	.22
Diseases, results of old age	1	.01	....	....	....	....	.02	.0002	1	.01	....	....	....	....	.02	.0002	....	....	....	....	....	....	....	....
Ill-defined diseases	1,300	17.49	1	.01	1	.01	32.81	.44	1,238	17.43	1	.01	1	.01	31.04	.44	62	18.82	....	....	....	....	1.77	.54
Total for diseases	64,354	865.92	1,146	15.20	228	3.02	2,647.49	35.62	61,739	869.26	1,093	15.16	210	2.91	2,528.01	35.59	2,615	793.87	53	16.09	18	5.46	119.48	36.27
External causes	14,646	197.07	124	1.64	142	1.88	435.61	5.86	14,085	198.31	120	1.66	136	1.89	420.23	5.92	561	170.31	4	1.21	6	1.82	15.38	4.67
Total for diseases and external causes	79,000	1,062.99	1,270	16.84	370	4.91	3,083.10	41.48	75,824	1,067.57	1,213	16.82	346	4.80	2,948.24	41.51	3,176	964.18	57	17.30	24	7.29	134.86	40.94

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TABLE NO. 63.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, United States, continental (excluding Alaska).*

Causes of admission to sick report.	United States, continental (excluding Alaska), total.										United States, continental (excluding Alaska), white.										United States, continental (excluding Alaska), colored.									
Mean strength	S. G. O., 57,124—A. G. O., 57,274.										S. G. O., 55,163—A. G. O., 55,347.										S. G. O., 1,961—A. G. O., 1,927.									
	Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.
Typhoid fever (including paratyphoid fever)	173	3.03				16	16	0.28	33.32	0.58	171	3.10				15	15	0.27	32.81	0.59	2	1.02				1	1	0.52	0.50	0.26
Fevers, undetermined	123	2.15							2.23	.04	122	2.21							2.21	.04	1	.51							.01	.01
Malarial fevers	1,317	23.06	1	1	0.02				29.38	.51	1,300	23.57	1	1	0.02				29.07	.53	17	8.67							.31	.16
Intermittent	1,159	20.29							23.25	.41	1,144	20.74							22.99	.42	15	7.65							.26	.13
Aestivo-autumnal	112	1.96							4.04	.07	110	1.99							3.99	.07	2	1.02							.05	.03
Malarial cachexia and undetermined infection	46	.80	1	1	.02				2.09	.04	46	.83	1	1	.02				2.09	.04										
Smallpox	2	.04							.23	.004	1	.02							.22	.004	1	.51							.01	.01
Measles	574	10.05				8	8	.14	35.85	.63	574	10.41				8	8	.14	35.85	.65										
Scarlet fever	23	.40				1	1	.02	1.90	.03	22	.40				1	1	.02	1.75	.03	1	.51							.15	.08
Diphtheria	35	.61				3	3	.05	1.90	.03	35	.63				3	3	.05	1.85	.03									.05	.03
Influenza	1,992	34.87				1	1	.02	31.53	.55	1,984	35.97				1	1	.02	31.37	.57	8	4.08							.16	.08
Cholera nostras	1	.02							.01	.0001	1	.02							.01	.0001										
Dysentery	110	1.93	5	5	.09				13.75	.24	105	1.90	5	5	.09				12.78	.23	5	2.55							.96	.49
Amebic	77	1.35	5	5	.09				11.69	.20	72	1.31	5	5	.09				10.72	.19	5	2.55							.96	.49
Bacillary	4	.07							.73	.01	4	.07							.73	.01										
Mixed infections and other dysenteries	29	.51							1.33	.02	29	.53							1.33	.02										
Leprosy			1	1	.02	1	1	.02	1.58	.03			1	1	.02	1	1	.02	1.58	.03										
Beriberi									.01	.0002									.01	.0002										
Erysipelas	30	.53	1			2	2	.03	1.61	.03	30	.54	1			2	2	.04	1.61	.03										
Dengue	4	.07							.05	.001	4	.07							.05	.001										
Mumps	692	12.11							29.30	.51	692	12.54							29.29	.53									.01	.01
Cerebrospinal meningitis, epidemic	13	.23	2	2	.03	7	7	.12	1.56	.03	13	.24	2	2	.04	7	7	.13	1.56	.03										
Yaws (frambesia)	1	.02							.42	.01									.06	.001	1	.51							.36	.18
Vaccinia	1,088	19.05							16.65	.29	1,077	19.52							16.48	.30	11	5.61							.17	.09
Purulent infection and septicemia	6	.11	1	1	.02	2	2	.03	.86	.02	6	.11	1	1	.02	2	2	.04	.86	.02										
Trichinosis	1	.02							.28	.005	1	.02							.28	.005										

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Tuberculosis (all)	271	4.74	169	120	2.10	40	37	.65	190.00	3.33	262	4.75	156	113	2.04	36	35	.63	178.11	3.23	9	4.59	13	7	3.63	4	2	1.04	11.90	6.07
Tuberculosis, pulmonary	226	3.96	158	111	1.94	33	30	.52	179.88	3.15	221	4.01	145	104	1.88	30	29	.52	168.65	3.06	5	2.55	13	7	3.63	3	1	.52	11.22	5.72
Tuberculosis of other organs	45	.79	11	9	.16	7	7	.12	10.14	.18	41	.75	11	9	.16	6	6	.11	9.46	.17	4	2.04				1	1	.52	.68	.35
Venereal diseases (all)	10,137	177.46	205	188	3.28				653.44	11.44	9,711	176.04	169	174	3.14				628.36	11.39	426	217.24	16	14	7.27				25.08	12.79
Syphilis and its results	1,534	26.85	121	110	1.92				152.99	2.68	1,460	26.47	109	100	1.81				145.67	2.64	74	37.74	12	10	5.19				7.33	3.74
Chancroid and its results	1,447	25.33							87.82	1.54	1,384	25.09							83.84	1.52	63	32.13							3.98	2.03
Gonorrhea and its results	7,156	125.27	84	78	1.36				412.61	7.22	6,867	124.49	80	74	1.34				398.85	7.23	289	147.37	4	4	2.08				13.77	7.02
Cancer and other malignant growths	9	.16	4	3	.05	1	1	.02	1.25	.02	9	.17	4	3	.05	1	1	.02	1.25	.02										
Rheumatism, articular (all)	834	14.60	26	25	.44	1	1	.02	58.00	1.02	818	14.83	26	25	45	1	1	.02	56.73	1.03	.16	8.16							1.27	.65
Rheumatic fever	491	8.60	2	2	.03	1	1	.02	30.25	.53	480	8.70	2	2	.04	1	1	.02	29.41	.53	11	5.61							.84	.43
Rheumatism, subacute and chronic, articular	343	6.00	24	23	.40				27.75	.49	338	6.13	24	23	.42				27.32	.50	5	2.55							.43	.22
Alcoholism and its results	1,427	24.98	20	19	.33	7	7	.12	18.62	.33	1,418	25.71	20	19	34	7	7	.13	18.46	.33	9	4.59							.15	.08
Insanity	93	1.63	107	79	1.38	1	1	.02	16.66	.29	89	1.62	99	76	1.38	1	1	.02	15.15	.27	4	2.04	8	3	1.56				1.51	.77
Epilepsy	110	1.93	58	51	.89				8.73	.15	110	1.99	58	51	.92				8.73	.16										
Trachoma	22	.39	4	3	.05				2.27	.04	22	.40	4	3	05				2.27	.04										
Organic disease of the heart	157	2.75	69	60	1.05	19	18	.31	20 13	.35	146	2.65	66	59	1.07	14	14	.25	17.90	.33	11	5.61	3	1	.52	5	4	2.08	2.23	1.14
Aneurism	5	.09	6	3	.05	3	3	.05	1.98	.03	5	.09	6	3	.05	3	3	.05	1.74	.03									.24	.12
Filariasis	1	.02							.12	.002									.08	.001	1	.51							.03	.02
Chyluria									.08	.001									.08	.001										
Other filariasis	1	.02							.03	.001											1	.51							.03	.02
Functional diseases of the heart	130	2.28	23	18	.31				8.36	.15	129	2.34	23	18	.33				8.85	.15	1	.51							.01	.004
Bronchitis, acute and chronic	2,088	36.55	3	3	.05				39.91	.70	2,039	36.96	3	3	.05				38.92	.71	49	24.99							.99	.51
Broncho-pneumonia	16	.28				3	3	.05	1.77	.03	16	.29				3	3	.05	1.60	.03									.17	.09
Pneumonia (pneumonic fever)	126	2.21				21	20	.35	9.51	17	115	2.08				19	18	.33	8.88	.16	11	5.61				2	2	1.04	.62	.32
Diarrhea and enteritis	1,603	28.06	5	5	.09	1	1	02	21.45	.38	1,570	28.46	5	5	.09	1	1	.02	20.99	.38	33	16.83							.46	.23
Intestinal parasites	321	5.62	1	1	.02				5.85	.10	319	5.78	1	1	.02				5.79	.10	2	1.02							.06	.03
Tenia saginata	55	.96							.99	.02	55	1.00							.99	.02										
Tenia solium	30	.53							.41	.01	30	.54							.41	.01										
Hymenolepsis nana	2	.04							.12	.002	2	.04							.12	.002										
Bothriocephalus latus	4	.07							.03	.001	4	.07							.03	.001										
Ascaris lumbricoides	6	.11							.09	.002	6	.11							.09	.002										
Oxyuris vermicularis	1	.02							.002	.00005	1	.02							.002	.00005										
Ankylostomum duodenale	99	1.73	1	1	.02				1.83	.03	98	1.78	1	1	.02				1.80	.03	1	.51							.03	.02
Necator Americanus	124	2.17							2.38	.04	123	2.23							2.35	.04	1	.51							.03	.02

[a] Including those occurring in the United States proper of cases from commands on duty in Alaska or insular possessions.
[b] Excluding those occurring in the United States proper of cases from commands on duty in Alaska or insular possessions.

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TABLE No. 63.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, United States, continental (excluding Alaska)*—Continued.

	United States, continental (excluding Alaska), total.										United States, continental (excluding Alaska), white.										United States, continental (excluding Alaska), colored.									
Mean strength	S. G. O., 57,124—A. G. O., 57,274.										S. G. O., 55,163—A. G. O., 55,347.										S. G. O., 1,961—A. G. O., 1,927.									
	Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
Causes of admission to sick report.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.
Inguinal and other herniæ	212	3.71	32	30	0.52				22.14	0.39	203	3.68	32	30	0.54				21.32	0.39	9	4.59							0.82	0.42
Hepatic abscess	14	.25	1	1	.02	5	4	0.07	3.27	.06	11	.20	1	1	.02	5	4	0.07	2.83	.05	3	1.53							.43	.22
Appendicitis	233	4.08	7	7	.12	2	2	.03	22.16	.39	221	4.01	7	7	.13	2	2	.04	21.16	.38	12	6.12							1.00	.51
Tropical ulcer	8	.14							.41	.01	8	.15							.41	.01										
Jiggers (pulex penetrans)	10	.18							.24	.004	10	.18							.24	.004										
Pemphigus contagiosus	9	.16							.39	.01	9	.16							.39	.01										
Dhobie itch	28	.49							.69	.01	28	.51							.67	.01									.02	.01
Tenia imbricata	9	.16							.12	.002	9	.16							.12	.002										
Prickly heat	9	.16							.09	.002	9	.16							.09	.002										
Acute nephritis	25	.44				4	4	.07	3.56	.06	25	.45				4	4	.07	3.56	.06										
Chronic nephritis	40	.70	16	15	.26	7	7	.12	6.55	.11	38	.69	14	13	.23	7	7	.13	6.40	.12	2	1.02	2	2	1.04				.15	.08
Malingering	61	1.07							1.53	.03	51	.92							1.17	.02	10	5.10							.36	.18
External causes, special.																														
Fractures, exclusive of gunshot	639	11.19	31	26	.45	20	20	.35	82.10	1.44	632	11.46	31	26	.47	19	19	.34	81.56	1.48	7	3.57				1	1	0.52	.54	.27
Dislocations	180	3.15	2	2	.03				8.24	.14	174	3.15	2	2	.04				8.07	.15	6	3.06							.16	.08
Sprains and muscular strains	3,487	61.04	10	9	.16				75.09	1.32	3,367	61.04	9	8	.14				73.04	1.32	120	61.19	1	1	.52				2.05	1.05
Wounds, gunshot	169	2.96	18	16	.28	35	35	.61	18.71	.33	162	2.94	18	16	.29	35	35	.63	17.73	.32	7	3.57							.98	.50
Wounds other than gunshot	2,513	43.99	18	15	.26	3	3	.05	60.46	1.06	2,459	44.57	18	15	.27	3	3	.05	58.87	1.07	54	27.54							1.59	.81
Sunstroke	4	.07	1	1	.02				.34	.01	4	.07	1	1	.02				.34	.01										
Frostbite and general freezing	80	1.40	3	2	.03				1.83	.03	71	1.29	2	1	.02				1.39	.03	9	4.59	1	1	.52				.44	.22
Drowning						23	23	.40								23	23	.42												
Poisoning, acute	158	2.77				11	11	.19	1.48	.03	154	2.79				9	9	.16	1.45	.03	4	2.04				2		1.04	.04	.02

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Venomous bites, etc.	44	.78							.74	.01	44	.80							.74	.01											
Snake bite	2	.04							.08	.002	2	.04							.08	.002											
Other venemous bites, etc.	42	.74							.65	.01	42	.76							.65	.01											
Diseases and injuries grouped.																															
General diseases	19,291	337.70	470	396	6.91	92	89	1.55	1,141.05	19.97	18,780	340.45	439	373	6.74	87	86	1.55	1,098.71	19.92	511	260.58	31	23	11.94	5	3	1.56	42.34	21.59
Infectious diseases	6,399	112.02	10	9	.16	39	39	.68	203.91	3.57	6,350	115.11	10	9	.16	38	38	.69	201.11	3.65	49	24.99				1	1	.52	2.80	1.43
Other general diseases	12,892	225.68	460	387	6.76	53	50	.87	937.14	16.40	12,430	225.33	429	364	6.58	49	48	.87	897.60	16.27	462	235.59	31	23	11.94	4	2	1.04	39.54	20.16
Diseases of the nervous system and organs of special sense	2,242	39.25	278	229	4.00	7	7	.12	115.05	2.01	2,198	39.84	268	226	4.08	7	7	.13	110.76	2.01	44	22.44	10	3	1.56				4.29	2.19
Of the nervous system	949	16.61	218	176	3.07	7	7	.12	63.67	1.11	926	16.79	208	173	3.13	7	7	.13	60.40	1.09	23	11.73	10	3	1.56				3.28	1.67
Of the eye and its adnexa	881	15.42	32	30	.52				29.53	.52	864	15.66	32	30	.54				28.68	.52	17	8.67							.85	.43
Of the ear and its adnexa	412	7.21	28	23	.40				21.85	.38	408	7.40	28	23	.42				21.68	.39	4	2.04							.17	.09
Diseases of the circulatory system	1,200	21.01	112	94	1.64	25	24	.42	73.98	1.30	1,157	20.97	108	92	1.66	20	20	.36	70.36	1.28	43	21.93	4	2	1.04	5	4	2.08	3.62	1.85
Diseases of the respiratory system	4,396	76.96	33	29	.51	28	27	.47	94.72	1.66	4,269	77.39	33	29	.52	25	24	.43	90.82	1.65	127	64.76				3	3	1.56	3.90	1.99
Diseases of the digestive system	11,520	201.67	71	64	1.12	14	12	.21	234.55	4.11	11,304	204.92	69	64	1.16	14	12	.22	228.96	4.15	216	110.15	2						5.59	2.85
Diseases of the genito-urinary system	819	14.34	51	48	.84	11	11	.19	40.37	.71	806	14.61	48	46	.83	11	11	.20	39.26	.71	13	6.63	3	2	1.04				1.11	.56
Diseases of the skin and cellular tissue	4,713	82.51	9	9	.16				119.67	2.09	4,616	83.68	9	9	.16				117.35	2.13	97	49.46							2.33	1.19
Diseases of the organs of locomotion	1,859	32.54	41	39	.68				64.39	1.13	1,796	32.56	39	37	.67				62.64	1.14	63	32.13	2	2	1.04				1.75	.89
Malformations, etc.	115	2.01	71	65	1.13				11.16	.20	113	2.05	70	64	1.16				10.76	.20	2	1.02	1	1	.52				.40	.21
Diseases, results of old age	1	.02							.02	.0003	1	.02							.02	.0003											
Ill-defined diseases	787	13.78	1	1	.02	1			22.64	.40	756	13.70	1	1	.02	1			21.92	.40	31	15.81							.72	.37
Total for diseases	46,943	821.77	1,137	974	17.01	178	170	2.97	1,917.61	33.57	45,796	830.19	1,084	941	17.00	165	160	2.89	1,851.56	33.56	1,147	584.91	53	33	17.13	13	10	5.19	66.04	33.68
External causes	11,573	202.59	123	107	1.87	107	107	1.87	350.13	6.13	11,235	203.67	119	103	1.86	104	104	1.88	340.64	6.18	338	172.36	4	4	2.08	3	3	1.56	9.49	4.84
Total for diseases and external causes	58,516	1,024.37	1,260	1,081	18.88	285	277	4.84	2,267.73	39.70	57,031	1,033.86	1,203	1,044	18.86	269	264	4.77	2,192.21	39.74	1,485	757.27	57	37	19.20	16	13	6.75	75.53	38.52
Subclassification (repeated above):																															
Suicide						28										27										1					
Homicide						12										12															

[a] Including those occurring in the United States proper of cases from commands on duty in Alaska or insular possessions.
[b] Excluding those occurring in the United States proper of cases from commands on duty in Alaska or insular possessions.

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TABLE No. 64.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, Alaska, Cuba, and Hawaii.*

Causes of admission to sick report.	Alaska.										Cuba.										Hawaii.									
Mean strength	S. G. O., 1,064—A. G. O., 1,146.										S. G. O., 604—A. G. O., 604.										S.G. O., 1,014—A. G. O., 1,087.									
	Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
	Number.	Ratio.	Number[a]	Number.[b]	Ratio.[b]	Number[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.
Typhoid fever (including paratyphoid fever)																			0.03	0.05	10	9.86				1	1	0.92	2.05	2.02
Fevers, undetermined	1	0.94							0.14	0.13	4	6.62							.05	.08	4	3.94							.05	.05
Malarial fevers	1	.94							.02	.02	16	26.49							.41	.68	5	4.93							.15	.15
Intermittent	1	.94							.02	.02	3	4.97							.07	.11	3	2.96							.13	.13
Aestivo-autumnal											13	21.52							.35	.57	1	.99							.02	.02
Malarial cachexia and undetermined infection																					1	.99							.003	.003
Influenza	4	3.76							.15	.14																				
Dysentery	1	.94							.54	.51									.02	.03	2	1.97							.08	.08
Amebic	1	.94							.54	.51									.02	.03										
Bacillary																													.02	.02
Mixed infections and other dysenteries																					2	1.97							.05	.05
Dengue																			.02	.04	9	8.88							.13	.13
Mumps	1	.94							.02	.02	1	1.66							.03	.05	6	5.92							.30	.29
Vaccinia											36	59.60							.41	.67	2	1.97							.02	.02
Tuberculosis (all)	5	4.70							.46	.43	1	1.66		6	9.93				.14	.24	3	2.96		1	0.92				.22	.22
Tuberculosis, pulmonary	5	4.70							.46	.43				5	8.28						2	1.97		1	.92				.10	.09
Tuberculosis of other organs											1	1.66		1	1.66				.14	.24	1	.99							.13	.13
Venereal diseases (all)	57	53.57							4.52	4.25	123	203.64		2	3.31				6.84	11.32	229	225.84	1	4	3.68				23.55	23.23
Syphilis and its results	7	6.58							1.05	.99	14	23.18		2	3.31				1.96	3.24	60	59.17	1	3	2.76				5.99	5.91
Chancroid and its results	7	6.58							.28	.26	27	44.70							2.25	3.72	26	25.64							1.43	1.41
Gonorrhea and its results	43	40.41							3.19	3.06	82	135.76							2.64	4.36	143	141.03		1	.92				16.13	15.91
Rheumatism, articular (all)	14	13.16							.78	.73	4	6.62							.17	.28	8	7.89							.35	.34
Rheumatic fever	6	5.64							.30	.28	4	6.62							.17	.28										
Rheumatism, subacute and chronic, articular	8	7.52							.48	.45											8	7.89							.35	.34
Alcoholism and its results	21	19.74	1	1	0.87				.20	.19	7	11.59		1	1.66				.10	.17	21	20.71	1	1	.92				.18	.18
Insanity	1	.94							.12	.12	2	3.31	2	2	3.31				.07	.12	1	.99		2	1.84				.12	.11

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Epilepsy																			1	.99							.003	.003
Trachoma	6	5.64							.42	.40									2	1.97							.24	.23
Organic disease of the heart	2	1.88							.04	.04			1	1.66					2	1.97							.25	.25
Functional diseases of the heart	1	.94							.02	.02	4	6.62					.13	.21	4	3.94		1	.92				.16	.16
Bronchitis, acute and chronic	9	8.46							.12	.12	7	11.59					.11	.18	31	30.57							.62	.61
Broncho-pneumonia	2	1.88							.29	.28																		
Pneumonia (pneumonic fever)	1	.94							.19	.18																	.33	.32
Diarrhea and enteritis	7	6.58							.36	.34	7	11.59					.11	.18	41	40.43							.45	.45
Intestinal parasites	1	.94							.01	.01	27	44.71					.22	.36	2	1.97							.04	.04
Tenia saginata	1	.94							.01	.01	1	1.66					.01	.01	1	.99							.01	.01
Tenia solium																			1	.99							.02	.02
Ankylostomum duodenale											26	43.05					.21	.35										
Inguinal and other herniæ											2	3.31					.45	.47	4	3.94							.53	.52
Hepatic abscess											1	1.66					.10	.16										
Appendicitis	3	2.82							.57	.53	7	11.59			1	11.66	.63	1.05	4	3.94							.15	.15
Tropical ulcer											2	3.31					.13	.21										
Dhobie itch											2	3.31					.07	.11	5	4.93							.21	.20
Prickly heat																			4	3.94							.12	.12
Chronic nephritis	1	.94							.05	05			1	1.66			.13	.22										
Malingering																	.02	.04										
External causes, special.																												
Fractures, exclusive of gunshot	10	9.40		1	.87				1.36	1.28	5	8.28					.49	.82	15	14.79	1	1	.92	1	1	.92	1.82	1.79
Dislocations	2	1.88							.03	.03	1	1.66					.07	.11	5	4.93							.40	.39
Sprains and muscular strains	43	40.41							.62	.58	28	46.36					.80	1.32	122	120.32							1.86	1.83
Wounds, gunshot	4	3.76		1	.87				1.20	1.13																		
Wounds other than gunshot	19	17.86		1	.87				.35	.32	25	41.39					.60	1.00	79	77.91							1.89	1.86
Frostbite and general freezing	5	4.70		1	87				.27	.25																		
Drowning						2	2	1.75																				
Poisoning, acute																			1	.99							.03	.03
Venomous bites, etc																			4	3.94							.04	.04
Snake bite																												
Other venomous bites, etc																			4	3.94							.04	.04
Diseases and injuries grouped.																												
General diseases	106	99.63	1	1	87				6.74	6.33	190	314.57		12	19.87		8.42	13.94	300	295.86	2	6	5.52	1	1	.92	27.27	26.90
Infectious diseases	7	6.58							.73	.69	53	87.75					.92	1.53	34	33.53				1	1	.92	2.72	2.68
Other general diseases	99	93.05	1	1	.87				6.00	5.64	137	226.82		12	19.87		7.50	12.41	266	262.33	2	6	5.52				24.55	24.21
Diseases of the nervous system and organs of special sense	20	18.80							.75	.71	15	24.83	2	2	3.31		1.32	2.18	67	66.07		3	2.76				3.97	3.92
Of the nervous system	5	4.70							.21	.20	5	8.28	2	2	3.31		.94	1.56	17	16.77		3	2.76				.57	.56
Of the eye and its adnexa	11	10.34							.47	.44	9	14.90					.27	.44	33	32.55							2.24	2.21
Of the ear and its adnexa	4	3.76							.07	.06	1	1.66					.11	.18	17	16.77							1.16	1.14
Diseases of the circulatory system	12	11.28							.41	.38	13	21.52		1	1.66		.60	.99	17	16.77		2	1.84				.80	.79
Diseases of the respiratory system	23	21.62							.80	.75	13	21.52					.37	.62	59	58.19		1	.92				1.82	1.80
Diseases of the digestive system	76	71.43							2.48	2.34	94	155.63				1	11.66	2.19	3.63	189	186.39		1	.92				3.97	3.92
Diseases of the genito-urinary system	9	8.46							.27	.25	6	9.93		1	1.66			.29	.48	11	10.85							.64	.63

[a] Number of discharges and deaths which actually occurred.
[b] Number of discharges and deaths including those of cases invalided home and deducted from the United States and transports.

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TABLE No. 64.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909, Alaska, Cuba, and Hawaii*—Continued.

Causes of admission to sick report.	Alaska.										Cuba.										Hawaii.									
Mean strength	S. G. O., 1,064—A. G. O., 1,146.										S. G. O., 604—A. G. O., 604.										S. G. O., 1,014—A. G. O., 1,087.									
	Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.
Diseases of the skin and cellular tissue	21	19.74	...	...	...	...	...	...	0.54	0.51	52	86.09	...	...	...	...	...	...	1.65	2.74	159	156.80	...	...	...	...	...	...	4.62	4.56
Diseases of the organs of locomotion	27	25.38	...	...	...	...	...	...	.62	.58	13	21.52	...	...	...	...	...	...	.21	.35	35	34.52	...	...	...	...	...	...	1.42	1.40
Malformations, etc	...	...	...	...	...	...	...	...	...	...	2	3.31	...	2	3.31	...	...	...	.17	.28	4	3.94	...	1	0.92	...	...	...	.24	.24
Ill-defined diseases	6	5.64	...	...	...	...	...	...	.18	.17	8	13.25	...	...	...	...	...	...	.28	.46	10	9.86	...	...	...	...	...	...	.12	.11
Total for diseases	300	281.95	1	1	0.87	...	...	...	12.80	12.03	406	672.19	2	18	29.80	1	1	1.66	15.50	25.67	851	839.25	2	14	12.88	1	1	0.92	44.88	44.26
External causes	115	108.08	...	4	3.49	2	2	1.75	4.46	4.19	76	125.83	...	...	...	...	...	...	2.37	3.92	346	341.22	1	1	.92	1	1	.92	8.41	8.30
Total for diseases and external causes	415	390.04	1	5	4.36	2	2	1.75	17.26	16.22	482	798.01	2	18	29.80	1	1	1.66	17.87	29.59	1,197	1,180.47	3	15	13.80	2	2	1.84	53.29	52.56

[a] Number of discharges and deaths which actually occurred.
[b] Number of discharges and deaths including those of cases invalided home and deducted from the United States and transports.

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TABLE No. 65.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909—American troops serving in the Philippine Islands.*

Causes of admission to sick report.	Philippine Islands, total.										Philippine Islands, white.										Philippine Islands, colored.									
Mean strength	S. G. O., 12,844—A. G. O., 13,214.										S. G. O., 11,685—A. G. O., 12,055.										S. G. O., 1,159—A. G. O., 1,159.									
	Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.
Typhoid fever (including paratyphoid fever)	79	6.15				2	2	0.15	12.15	0.95	77	6.59				2	2	0.17	11.91	1.02	2	1.73							0.23	0.20
Fevers, undetermined	327	25.46							4.57	.36	311	26.62							4.35	.37	16	13.81							.22	.19
Malarial fevers	1,443	112.35				2	2	.15	31.10	2.42	1,345	115.10				2	2	.17	29.44	2.52	98	84.56							1.66	1.43
Intermittent	971	75.60							18.69	1.46	886	75.82							17.26	1.48	85	73.34							1.43	1.23
Aestivo autumnal	425	33.09				2	2	.15	10.41	.81	418	35.77				2	2	.17	10.26	.88	7	6.04							.15	.13
Malarial cachexia, and undetermined infection	47	3.66							1.99	.15	41	3.51							1.92	.17	6	5.18							.08	.07
Measles	2	.16							.16	.01	2	.17							.16	.01										
Influenza	12	.93							.29	.02	12	1.03							.29	.02										
Cholera nostras	1	.08							.01	.001	1	.09							.01	.001										
Dysentery	553	43.06				14	14	1.06	38.43	2.99	520	44.50				13	13	1.08	36.65	3.14	33	28.47				1	1	0.86	1.78	1.54
Amebic	238	18.53				3	3	.23	19.47	1.52	217	18.57				2	2	.17	18.04	1.54	21	18.12				1	1	.86	1.43	1.23
Bacillary	150	11.68				6	6	.45	10.93	.85	145	12.41				6	6	.50	10.81	.93	5	4.31							.12	.10
Mixed infections and other dysenteries	165	12.85				5	5	.38	8.03	.63	158	13.52				5	5	.41	7.79	.67	7	6.04							.24	.21
Leprosy	1	.08	1	1	0.08				.55	.04	1	.09	1	1	0.08				.55	.05										
Beriberi	2	.16							.22	.02	2	.17							.22	.02										
Erysipelas	1	.08		1	.08				.03	.003	1	.09		1	.08				.03	.003										
Dengue	1,672	130.18				1	1	.08	29.50	2.30	1,614	138.13				1	1	.08	28.49	2.44	58	50.04							1.01	.87
Mumps	13	1.01							.50	.04	13	1.11							.50	.04										
Vaccinia	1	.08							.01	.001	1	.09							.01	.001										
Purulent infection and septicemia	5	.39				3	3	.23	.19	.01	5	.43				3	3	.25	.19	.02										
Tuberculosis (all)	65	5.06	2	44	3.33	2	6	.45	5.41	.42	58	4.96	2	38	3.15	1	3	.25	4.75	.41	7	6.04		6	5.18	1	3	2.59	.66	.57
Tuberculosis, pulmonary	60	4.67	2	43	3.25	1	5	.38	5.10	.40	55	4.71	2	37	3.07	1	3	.25	4.56	.40	5	4.31		6	5.18		2	1.73	.55	.47
Tuberculosis of other organs	5	.39		1	.08	1	1	.08	.31	.02	3	.26		1	.08				.19	.02	2	1.73				1	1	.86	.12	.10
Venereal diseases (all)	3,877	301.85		12	.91				271.67	21.15	3,392	290.29		10	.83				244.33	20.91	485	418.46		2	1.73				27.34	23.59
Syphilis and its results	592	46.09		7	.53				59.78	4.65	565	48.35		5	.41				57.96	4.96	27	23.30		2	1.73				1.82	1.57
Chancroid and its results	733	57.07							41.29	3.21	635	54.34							35.38	3.03	98	84.56							5.91	5.10
Gonorrhea and its results	2,552	198.69		5	.38				170.61	13.28	2,192	187.59		5	.41				151.00	12.92	360	310.61							19.61	16.92

[a] Number of discharges and deaths which actually occurred in the Philippines Division.
[b] Number of discharges and deaths charged to the Philippines Division, including those of cases invalided home and deducted from the United States and transports.

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TABLE No. 65.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909—American troops serving in the Philippine Islands*—Continued.

	Philippine Islands, total.									Philippine Islands, white.									Philippine Islands, colored.								
Mean strength	S. G. O., 12,844—A. G. O., 13,214.									S. G. O., 11,685—A. G. O., 12,055.									S. G. O., 1,159—A. G. O., 1,159.								
Causes of admission to sick report.	Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.		Admissions.		Discharges.			Deaths.			Noneffective.	
	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.[b]	Number.[a]	Number.[b]	Ratio.[b]	Number.	Ratio.
Cancer and other malignant growths	1	0.08		1	0.08	1	1	0.08	0.36	0.03	1	0.09		1	0.08	1	1	0.08	0.27	0.02								0.09	0.08
Rheumatism, articular (all)	98	7.63		1	.08				7.95	.62	80	6.85		1	.08				7.26	.62	18	15.53						.69	.60
Rheumatic fever	52	4.05							3.41	.27	39	3.34							2.93	.25	13	11.22						.48	.41
Rheumatism, subacute and chronic, articular	46	3.58		1	.08				4.42	.35	41	3.51		1	.08				4.21	.37	5	4.31						.21	.18
Alcoholism, and its results	285	22.19							3.92	.31	275	23.53							3.77	.32	10	8.63						.15	.13
Insanity	20	1.56		26	1.97				2.19	.17	18	1.54		21	1.74				1.98	.17	2	1.73		5	4.31			.21	.18
Epilepsy	16	1.25		7	.53				1.07	.08	16	1.37		7	.58				1.07	.09									
Trachoma	2	.16		1	.08				.61	.05	2	.17		1	.08				.61	.05									
Organic disease of the heart	23	1.79		8	.61	7	8	.61	2.67	.21	19	1.63		6	.50	6	6	.50	2.22	.19	4	3.45		2	1.73	1	2	1.73	.45	.39
Aneurism	3	.23		3	.23				.37	.03	2	.17		3	.25				.36	.03	1	.86						.01	.01
Filariasis	1	.08							.09	.01	1	.09							.09	.01									
Chyluria	1	.08							.09	.01	1	.09							.09	.01									
Functional diseases of the heart	39	3.04		4	.30				2.53	.20	39	3.34		4	.33				2.53	.22									
Bronchitis, acute and chronic	326	25.38							7.62	.59	286	24.47							7.18	.62	40	34.51						.44	.38
Broncho-pneumonia	2	.16							.07	.01	2	.17							.07	.01									
Pneumonia (pneumonic fever)	13	1.01					1	.08	1.63	.13	12	1.03					1	.08	1.53	.13	1	.86						.09	.08
Diarrhea and enteritis	768	59.79				1	1	.08	15.09	1.17	739	63.24				1	1	.08	14.71	1.26	29	25.02						.38	.32
Intestinal parasites	36	2.80							1.44	.11	36	3.08							1.44	.12									
Tenia saginata	7	.55							.07	.01	7	.60							.07	.01									
Ascaris lumbricoides	13	1.01							.68	.05	13	1.11							.68	.06									
Oxyuris vermicularis	1	.08							.02	.001	1	.09							.02	.001									
Ankylostomum duodenale	11	.86							.55	.04	11	.94							.55	.05									
Necator Americanus	3	.23								.01	3	.26								.01									
Other intestinal parasites	1	.08								.0004	1	.09								.0004									
Inguinal and other hernia	45	3.50		2	.15				6.10	.48	40	3.42		2	.17				5.41	.46	5	4.31						.69	.60
Hepatic abscess	7	.55				2	3	.23	1.22	.10	7	.60				2	3	.25	1.22	.10									
Appendicitis	93	7.24				3	3	.23	9.61	.75	90	7.70				2	2	.17	9.44	.81	3	2.59				1	1	.86	.17	.14

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Climatic bubo	7	.55							.63	.05	7	.60							.63	.05										
Tropical ulcer	11	.86							.80	.06	11	.94							.80	.07										
Pemphigus contagiosus	38	2.96							1.12	.09	38	3.25							1.12	.10										
Dhobie itch	174	13.55							3.61	.28	144	12.32							3.04	.26	30	25.89							.57	.49
Tenia imbricata	1	.08							.03	.002	1	.09							.03	.003										
Prickly heat	6	.47							.11	.01	6	.51							.11	.01										
Acute nephritis	3	.23				1	1	.08	.10	.01	3	.26				1	1	.08	.10	.01										
Chronic nephritis	4	.31							.45	.04	4	.34							.45	.04										
Malingering	9	.70							.42	.03	8	.68							.24	.02	1	.86							.18	.15
External causes, special.																														
Fractures, exclusive of gunshot	127	9.89		4	.30	3	3	.23	12.44	.97	120	10.27		4	.33	2	2	.17	11.27	.96	7	6.04				1	1	.86	1.18	1.01
Dislocations	27	2.10							1.25	.10	24	2.05							1.09	.09	3	2.59							.16	.14
Sprains and muscular strains	537	41.81		1	.08				10.59	.82	482	41.25		1	.08				9.93	.85	55	47.46							.66	.57
Wounds, gunshot	42	3.27		1	.08	16	16	1.21	4.43	.34	40	3.42		1	.08	16	16	1.33	4.05	.35	2	1.73							.38	.32
Wounds other than gunshot	568	44.22		2	.15	4	4	.30	14.81	1.15	510	43.65		2	.17	3	3	.25	13.38	1.15	58	50.04				1	1	.86	1.43	1.23
Sunstroke	3	.23							.02	.001	3	.26							.02	.002										
Drowning						2	2	.15								2	2	.17												
Poisoning, acute	153	11.91							1.76	.14	151	12.92							1.75	.15	2	1.73							.01	.01
Venomous bites	38	2.96							.72	.06	33	2.82							.65	.06	5	4.31							.07	.06
Snake bites																														
Other venomous bites	38	2.96							.72	.06	33	2.82							.65	.06	5	4.31							.07	.06
Diseases and injuries grouped.																														
General diseases	8,136	633.45	3	61	4.62	26	30	2.27	403.48	31.41	7,425	635.43	3	53	4.40	24	26	2.16	369.86	31.65	711	613.46		8	6.90	2	4	3.45	33.62	29.00
Infectious diseases	3,781	294.38	1	2	.15	19	19	1.44	112.99	8.80	3,590	307.23	1	2	.17	18	18	1.49	108.30	9.27	191	164.80				1	1	.86	4.68	4.04
Other general diseases	4,355	339.07	2	59	4.47	7	11	.83	290.49	22.62	3,835	328.20	2	51	4.23	6	8	.66	261.56	22.38	520	448.66		8	6.90	1	3	2.59	28.93	24.96
Diseases of the nervous system and organs of special sense	524	40.80		46	3.48	2	3	.23	26.38	2.05	477	40.82		39	3.24	2	3	.25	24.36	2.08	47	40.55		7	6.04				2.03	1.75
Of the nervous system	216	16.82		39	2.95	2	3	.23	14.04	1.09	193	16.52		32	2.65	2	3	.25	13.12	1.12	23	19.85		7	6.04				.92	.79
Of the eye and its adnexa	173	13.47		2	.15				6.76	.53	154	13.18		2	.17				5.74	.49	19	16.39							1.02	.88
Of the ear and its adnexa	135	10.51		5	.38				5.59	.44	130	11.13		5	.42				5.50	.47	5	4.31							.09	.08
Diseases of the circulatory system	418	32.55		15	1.14	8	9	.68	24.56	1.91	390	33.38		13	1.08	6	6	.50	23.06	1.97	28	24.16		2	1.73	2	3	2.59	1.49	1.29
Diseases of the respiratory system	585	45.55		3	.23		1	.08	14.90	1.16	501	42.88		3	.25		1	.08	13.76	1.18	84	72.48							1.14	.99
Diseases of the digestive system	2,675	208.27	1	7	.53	7	9	.68	68.20	5.31	2,426	207.62	1	5	.42	6	8	.66	63.75	5.46	249	214.84		2	1.73	1	1	.86	4.45	3.84
Diseases of the genito-urinary system	199	15.49		2	.15	1	1	.08	7.48	.58	190	16.26		1	.08	1	1	.08	7.15	.61	9	7.77		1	.86				.34	.29
Diseases of the skin and cellular tissue	1,496	116.47							41.98	3.27	1,392	119.13							39.01	3.34	104	89.73							2.97	2.56
Diseases of the organs of locomotion	349	27.17		2	.15				12.44	.97	302	25.85		2	.17				11.67	1.00	47	40.55							.77	.67
Malformations, etc	9	.70		3	.23				.88	.07	8	.68		3	.25				.63	.05	1	.86							.26	.22
Ill-defined diseases	463	36.05					1	.08	8.91	.69	436	37.31					1	.08	7.92	.68	27	23.30							.99	.85
Total for diseases	14,854	1,156.49	4	139	10.52	44	54	4.09	609.21	47.43	13,547	1,159.35	4	119	9.87	39	46	3.82	561.15	48.02	1,307	1,127.70		20	17.26	5	8	6.90	48.06	41.47
External causes	2,460	191.53		12	.91	31	31	2.35	66.03	5.14	2,244	192.04		12	1.00	28	28	2.32	60.32	5.16	216	186.37				3	3	2.59	5.71	4.93
Total for diseases and external causes	17,314	1,348.02	4	151	11.43	75	85	6.43	675.25	52.57	15,791	1,351.39	4	131	10.87	67	74	6.14	621.48	53.19	1,523	1,314.06		20	17.26	8	11	9.49	53.77	46.40

[a] Number of discharges and deaths which actually occurred in the Philippines Division.
[b] Number of discharges and deaths charged to the Philippines Division, including those of cases invalided home and deducted from the United States and transports.

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TABLE No. 66.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909—American troops on transports, Porto Rican native troops, and Filipino troops.*

Causes of admission to sick report.	Transports, total.									Porto Rican native troops.								Philippine Scouts.							
Mean strength	S. G. O., 1,669—A. G. O., 2,074.									S. G. O., 567—A. G. O., 567.								S. G. O., 5,369—A. G. O., 5,539.							
	Admissions.		Discharges.		Deaths.			Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
	Number.	Ratio.	Number.	Ratio.	Number. a	Number. b	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Typhoid fever (including paratyphoid fever)	5	3.00						0.17	0.10	3	5.29			1	1.76	0.49	0.86	7	1.30			1	0.18	1.05	0.20
Fevers, undetermined	11	6.59						.19	.11	2	3.53					.01	.02	95	17.69					1.47	.27
Malarial fevers	73	43.74						1.32	.79	102	179.89					2.73	4.82	1,095	203.95					21.75	4.05
Intermittent	59	35.35						.74	.44	81	142.86					2.17	3.83	967	180.11					17.92	3.34
Aestivo-autumnal	9	5.39						.18	.11	20	35.27					.54	.96	110	20.49					3.22	.60
Malarial cachexia and undetermined infection	5	3.00						.40	.24	1	1.76					.02	.03	18	3.35					.61	.11
Smallpox										2	3.53					.18	.29	3	.56					.27	.05
Measles	4	2.40						.18	.11	10	17.64					.53	.93								
Influenza										47	82.89					.64	1.13	23	4.28					.32	.06
Asiatic cholera																		9	1.68			7	1.26	.30	.06
Cholera nostras																		1	.19					.05	.01
Dysentery	9	5.39						4.35	2.60	8	14.11	1	1.76			.61	1.08	51	9.50			1	.18	3.02	.56
Amebic	3	1.80						3.33	2.00	5	8.82	1	1.76			.41	.72	24	4.47					1.73	.32
Bacillary	1	.60						.37	.22	3	5.29					.21	.36	8	1.49					.33	.06
Mixed infections and other dysenteries	5	3.00						.64	.38									19	3.54			1	.18	.96	.18
Beriberi	1	.60						.27	.16									558	103.93	33	5.96	12	2.17	6.20	11.96
Erysipelas																		1	.19					4.02	.0004
Dengue	10	5.99						.11	.06									66	12.29					1.17	.22
Mumps	7	4.19						.18	.11	2	3.53					.09	.16	17	3.17					.48	.09
Cerebrospinal meningitis, epidemic	1	.60			1	1	0.48	.01	.01																
Yaws (frambesia)																		2	.37	1	.18			.31	.06
Vaccinia	3	1.80						.12	.07	2	3.53					.06	.11	12	2.24					.12	.02
Purulent infection and septicemia																		2	.37			2	.36	.03	.01
Tuberculosis (all)	5	3.00			1			5.68	3.41	2	3.53					.15	.26	32	5.96	28	5.06			3.93	.73
Tuberculosis, pulmonary	4	2.40			1			5.50	3.29	1	1.76					.02	.03	31	5.77	28	5.06			3.88	.72
Tuberculosis of other organs	1	.60						.19	.11	1	1.76					.13	.23	1	.19					.04	.01
Venereal diseases (all)	217	130.02						11.23	6.73	142	250.44	1	1.76			8.17	14.41	261	48.61	2	.36			19.28	3.59
Syphilis and its results	56	33.55						4.07	2.44	19	33.51	1	1.76			1.61	2.84	22	4.10					3.53	.66
Chancroid and its results	47	28.16						1.60	.97	51	89.95					2.69	4.75	19	3.54					1.27	.24
Gonorrhea and its results	114	68.30						5.56	3.33	72	126.98					3.87	6.83	220	40.98	2	.36			14.48	2.70

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Cancer and other malignant growths								.07	.04								1	.19			1	1.18	.09	.02
Rheumatism, articular (all)	22	13.18						.85	.51	5	8.82					.23	.40	19	3.54				1.22	.23
Rheumatic fever	14	8.39						.33	.20	5	8.82					.23	.40	16	2.98				1.07	.20
Rheumatism, subacute and chronic, articular	8	4.79						.52	.31									3	.56				.15	.03
Alcoholism and its results	14	8.39						.32	.19	1	1.76	1	1.76			.22	.38	1	.19				.07	.01
Insanity	3	1.80						1.92	1.15	2	3.53					.07	.13							
Epilepsy	2	1.20						.65	.39									2	.37	2	.36		.21	.04
Trachoma								.15	.09									4	.75				.31	.06
Organic disease of the heart	3	1.80						1.07	.64									7	1.30	3	.54	2	.36	.39	.07
Aneurism	1	.60						.33	.20															
Filariasis								.08	.05	13	22.93					.50	.89	2	.37				.09	.02
Chyluria								.08	.05															
Lymphangitis and elephantoid fever										11	19.40					.28	.49							
Other filariasis										1	1.76					.17	.30	2	.37				.09	.02
Bilharziosis										1	1.76					.05	.09							
Functional diseases of the heart								.60	.36									3	.56				.24	.04
Bronchitis, acute and chronic	60	35.95						.95	.57	17	29.98					.30	.53	233	43.40				5.43	1.01
Broncho-pneumonia	1	.60						.03	.02									4	.75			1	.18	.26	.05
Pneumonia (pneumonic fever)	14	8.39			1	1	.48	.51	.31									15	2.79			3	.54	1.52	.28
Diarrhea and enteritis	81	48.53						1.28	.77	17	29.98					.21	.38	208	38.74					3.43	.64
Intestinal parasites										5	8.82					.21	.38	158	29.43					3.73	.69
Tenia saginata																		1	.19					.01	.003
Ascaris lumbricoides																		25	4.66					.53	.10
Ankylostomum duodenale																		71	13.22					2.08	.39
Necator Americanus										5	8.82					.21	.38	60	11.18					1.08	.20
Other intestinal parasites																		1	.19					.02	.005
Inguinal and other herniæ	5	3.00						.38	.23	4	7.05					.29	.51	4	.75					.33	.06
Hepatic abscess								.21	.12									1	.19			1	.18	.02	.004
Appendicitis	7	4.19						.45	.27	1	1.76			1	1.76	.01	.01	5	.93					.37	.07
Climatic bubo																.14	.25								
Tropical ulcer	2	1.20						.07	.04									13	2.42					.71	.13
Pemphigus contagiosus	2	1.20						.04	.02	1	1.76					.01	.02	1	.19					.02	.004
Dhobie itch	3	1.80						.05	.03	2	3.53					.02	.04	102	19.00					2.31	.43
Tenia imbricata																		2	.37					.02	.005
Prickly heat	1	.60						.02	.01									3	.56					.07	.01
Acute nephritis																		2	.37					.05	.01
Chronic nephritis								.24	.14	1	1.76					.03	.05	4	.75	1	.18			1.32	.25
Malingering																		4	.75					.09	.02
External causes, special.																									
Fractures, exclusive of gunshot	8	4.79						1.13	.67	4	7.05			1	1.76	.94	1.67	19	3.54	1	.18			1.80	.33
Dislocations	4	2.40						.18	.11									4	.75					.32	.06
Sprains and muscular strains	13	7.79						.33	.20	13	22.93					.21	.37	103	19.18					2.39	.44
Wounds, gunshot								.29	.18	2	3.53			1	1.76	.03	.06	1	.19	2	.36	4	.72	.35	.06
Wounds other than gunshot	14	8.39						.90	.54	11	19.40					.74	1.30	290	54.01	1	.18	1	.18	5.07	.94
Drowning					1	1	.48							1	1.76										
Poisoning, acute	3	1.80						.01	.005	1	1.76					.01	.01	6	1.12			1	18	.07	.01
Venomous bites, etc										1	1.76					.01	.02	19	3.54					.26	.05
Snake bite																		1	.19					.02	.004
Other venomous bites, etc										1	1.76					.01	.02	18	3.35					.23	.04

[a] Number of deaths actually occurring on transports.

[b] Number of deaths on transports excluding those invalided home and charged to the Philippines.

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TABLE No. 66.—*Admissions to sick report, discharges, deaths, and noneffectiveness, with ratios per 1,000 of mean strength, for the year 1909—American troops on transports, Porto Rican native troops, and Filipino troops*—Continued.

Causes of admission to sick report.	Transports, total.									Porto Rican native troops.								Philippine Scouts.							
Mean strength	S. G. O., 1,669—A. G. O., 2,074.									S. G. O., 567—A. G. O., 567.								S. G. O., 5,369—A. G. O., 5,539.							
	Admissions.		Discharges.		Deaths.			Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.		Admissions.		Discharges.		Deaths.		Noneffective.	
	Number.	Ratio.	Number.	Ratio.	Number.[a]	Number.[b]	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.	Number.	Ratio.
Diseases and injuries grouped.																									
General diseases	373	223.49	....	....	2	1	0.48	25.13	15.06	342	603.17	3	5.29	1	1.76	14.24	25.12	2,176	405.29	64	11.55	24	4.33	118.45	22.06
Infectious diseases	113	67.71	....	....	1	1	.48	6.69	4.01	191	336.86	1	1.76	1	1.76	5.38	9.49	1,851	344.76	34	6.14	21	3.79	93.42	17.40
Other general diseases	260	155.78	....	....	1	....	....	18.44	11.05	151	266.32	2	3.53	....	....	8.86	15.63	325	60.53	30	5.42	3	.54	25.03	4.66
Diseases of the nervous system and organs of special sense	87	52.13	....	....	1	....	....	5.86	3.51	14	24.69	....	....	1	1.76	.63	1.10	155	28.87	4	.72	....	....	4.38	.82
Of the nervous system	61	36.55	....	....	1	....	....	4.73	2.84	8	14.11	....	....	1	1.76	.48	.84	51	9.50	4	.72	....	....	1.56	.29
Of the eye and its adnexa	14	8.39	....	....	....	....	....	.68	.41	6	10.58	....	....	....	....	.15	.27	83	15.46	....	....	....	....	2.28	.42
Of the ear and its adnexa	12	7.19	....	....	....	....	....	.44	.27	....	....	....	....	....	....	....	....	21	3.91	....	....	....	....	.55	.10
Diseases of the circulatory system	21	12.58	....	....	....	....	....	2.66	1.59	29	51.15	....	....	....	....	1.43	2.53	52	9.69	3	.54	4	.72	2.67	.50
Diseases of the respiratory system	133	79.69	....	....	1	1	.48	2.83	1.69	34	59.96	....	....	1	1.76	.84	1.48	333	62.02	3	.54	4	.72	9.12	1.70
Diseases of the digestive system	258	154.58	....	....	....	....	....	6.40	3.84	78	137.57	1	1.76	1	1.76	1.69	2.98	920	171.35	....	....	1	.18	14.68	2.73
Diseases of the genito-urinary system	6	3.59	....	....	....	....	....	.58	.35	17	29.98	....	....	....	....	.81	1.43	28	5.22	1	.18	1	.18	2.37	.44
Diseases of the skin and cellular tissue	71	42.54	....	....	....	....	....	1.62	.97	88	155.20	....	....	....	....	1.83	3.23	566	105.42	....	....	....	....	16.47	3.07
Diseases of the organs of locomotion	25	14.98	....	....	....	....	....	1.33	.79	12	21.16	....	....	....	....	.53	.62	107	19.91	....	....	....	....	2.83	.53
Malformations, etc	....	....	....	....	....	....	....	.38	.23	1	1.76	1	1.76	....	....	.10	.18	2	.37	1	.18	....	....	.01	.001
Ill-defined diseases	26	15.58	....	....	....	....	....	.69	.41	2	3.53	....	....	....	....	.01	.02	123	22.99	....	....	....	....	2.33	.43
Total for diseases	1,000	599.16	....	....	4	2	.96	47.49	28.46	617	1,088.18	5	8.82	4	7.05	21.95	38.70	4,462	831.07	76	13.72	34	6.14	173.30	32.28
External causes	76	45.54	....	....	1	1	.48	4.20	2.52	57	100.53	1	1.76	3	5.29	2.45	4.33	574	106.91	4	.72	7	1.26	15.21	2.83
Total for diseases and external causes	1,076	644.70	....	....	5	3	1.45	51.69	30.97	674	1,188.71	6	10.58	7	12.35	24.40	43.03	5,036	937.98	80	14.44	41	7.40	188.51	35.11

[a] Number of deaths actually occurring on transports.

[b] Number of deaths on transports excluding those invalided home and charged to the Philippines.

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TABLE No. 67.—*Total movement of sick for the United States Army at home compared with that of foreign armies.*

	United States (continental), year 1909 (American troops, enlisted men).						British (United Kingdom), year 1908.		French (France), year 1907.		Prussian, year 1907.	
	White and colored.		White.		Colored.							
Mean strength	[a] 57,124		55,163		1,961		107,392		436,940		536,580	
	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.
Admitted to sick report, total	[b] 58,516	44,527	57,031	43,298	1,485	1,229	101,619	45,960	[b] 931,838	335,517	320,256	131,318
Ratio per 1,000 of mean strength	1,024.37	779.48	1,033.86	784.91	757.27	626.72	946.2	428.0	2,132.65	767.88	596.8	244.7
Admitted for disease	46,943		45,796		1,147		75,418	39,068				
Ratio per 1,000 of mean strength	821.77		830.19		584.91		702.2	363.8				
Admitted for injury	11,573		11,235		338		26,201	6,892				
Ratio per 1,000 of mean strength	202.59		203.67		172.36		244.0	64.2				
Disposed of, all causes	58,791		57,343		1,448						321,384	
Ratio per 1,000 of mean strength	1,029.18		1,039.52		738.40						598.9	
Died, all causes	277		264		13		299		1,958		968	
Ratio per 1,000 of mean strength	4.84		4.77		6.75		2.52		[c] 3.92		[c] 1.8	
Ratio per 1,000 of all disposed of	4.71		4.60		8.98						3.01	
Died of disease	170		160		10		214		1,720		643	
Ratio per 1,000 of mean strength	2.97		2.89		5.19		1.81		3.44		1.2	
Died of injury	107		104		3		85		238		325	
Ratio per 1,000 of mean strength	1.87		1.88		1.56		.71		.47		.6	
Died when on sick report or present with command	193		182		11		256		1,645		684	
Ratio per 1,000 of mean strength	3.38		3.30		5.61		2.16		3.30		1.3	
Ratio per 1,000 of all disposed of	3.28		3.17		7.60						2.1	
Died when not on sick report or absent from command	84		82		2		42		313		284	
Accidental deaths	80		78		2		60		160		142	
Suicides	27		26		1		25		78		183	
Returned to duty	56,256		54,882		1,374						302,601	
Ratio per 1,000 of all disposed of	956.88		957.08		948.90						941.6	
Otherwise disposed of	1,177		1,153		24						17,815	
Ratio per 1,000 of all disposed of	20.02		20.11		16.57						55.4	
Total days lost on account of sickness, all causes	827,723	731,054	800,155	705,799	27,568	25,255	1,225,485	940,843	6,528,579	5,055,492	4,876,587	
Constantly noneffective on account of sickness, all causes	2,267.73	2,002.89	2,192.21	1,933.70	75.53	69.19	3,348.32	2,570.61	17,886.52	13,850.66	13,360.51	
Ratio per 1,000 of mean strength	39.70	35.06	39.74	35.05	38.52	35.29	31.18	23.94	40.94	31.70	24.90	
Average days of treatment:												
For each soldier of mean strength	14.49	12.80	14.51	12.79	14.06	12.88	11.41	8.76	14.94	10.86	9.1	
For each case of sickness	14.15	16.42	14.03	16.30	18.56	20.55	11.91	20.47	7.01	14.50	14.8	
Discharges for disability, all causes	1,081		1,044		37		1,486		20,212		23,755	
Ratio per 1,000 of mean strength	18.87		18.86		19.20		12.54		40.50		44.3	
Total losses per 1,000 of mean strength	23.71		23.63		25.95		15.06		44.42		46.1	

[a] Death and discharge ratios are calculated on the average strength present and absent, total 75,399, white 72,105, colored 3,294.

[b] Admissions in "chambre," French army, and in "quarters," American army are included under "Total;" and those in "infirmerie," French army, being synonomous with post hospital, American army, are included under "Hospital."

[c] The number of deaths is given as reported on International Table IX as the ratios therefrom afford better comparison with the same figures for American troops.

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	Bavarian, year 1907.		Austro-Hungarian, year 1907.		Spanish, year 1907.		Belgian, year 1907.		Russian, year 1907.		Japanese, year 1907.		Dutch, year 1905.	
Mean strength	66,156.		235,455.		81,655.		36,113		1,285,772.		163,287.		28,399.	
	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.	Total.	Hospital.
Admitted to sick report, total	32,616	14,335	235,936	109,578	90,630	33,514		15,045	561,272	517,428	125,326	26,419	38,490	20,647
Ratio per 1,000 of mean strength	493.0	216.7	826.5	383.9	1,109.9	410.4		416.61	436.5	402.4	767.52	161.80	1,355.33	727.03
Admitted for disease														
Ratio per 1,000 of mean strength														
Admitted for injury														
Ratio per 1,000 of mean strength														
Disposed of, all causes	32,633		235,866		90,898			15,112	562,344		125,022		39,076	
Ratio per 1,000 of mean strength	493.2		826.3		1,113.2			418.46	436.5		765.66		1,375.96	
Died, all causes	117		925		378			75	5,372		761		75	
Ratio per 1,000 of mean strength	a 1.8		a 3.24		a 4.6			a 2.08	a 4.17		a 4.66		a 2.64	
Ratio per 1,000 of all disposed of	3.6		3.9		4.2			4.96	9.55		6.09		1.92	
Died of disease	77		639		347			57	4,529		616		64	
Ratio per 1,000 of mean strength	1.2		2.24		4.24			1.58	3.52		3.77		2.25	
Died of injury	40		286		31			18	843		145		11	
Ratio per 1,000 of mean strength	.6		1.00		.4			.50	.65		.89		.39	
Died when on sick report or present with command	87				378			47			605			
Ratio per 1,000 of mean strength	1.3				4.6			1.3			3.71			
Ratio per 1,000 of all disposed of	2.7				4.2						4.84			
Died when not on sick report or absent from command	30							28			156			
Accidental deaths	20		87		21			11	633		38		10	
Suicides	20		199		10			7	210		107		1	
Returned to duty	30,319		201,792		85,135			13,225	501,374		115,747		36,528	
Ratio per 1,000 of all disposed of	929.1		855.5		936.6			875.1	891.6		925.81		934.79	
Otherwise disposed of	2,197		33,149		5,385			1,812	55,598		8,514		2,473	
Ratio per 1,000 of all disposed of	67.32		140.5		59.2			119.9	98.9		68.10		63.29	
Total days lost on account of sickness, all causes	541,388		3,776,206		891,463			305,749			2,069,510			107,991
Constantly noneffective on account of sickness, all causes	1,483.25		10,345.77		2,442.36			837.67			5,669.89			295.87
Ratio per 1,000 of mean strength	22.42		36.26		29.91			23.20			34.72			10.42

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Average days of treatment:														
For each soldier of mean strength..	8.2	.....	13.2	.....	10.9	.....	.....	8.47	10.7	.....	12.67	.....	.....	3.8
For each case of sickness.....	16.1	.....	15.5	.....	25.1	.....	.....	20.32	24.5	.....	16.51	.....	.....	5.2
Discharges for disability, all causes....	3,174	.....	.....	.....	2,954	.....	.....	632	56,441	.....	5,691	.....	.....	.....
Ratio per 1,000 of mean strength..	48.0	.....	.....	.....	36.2	.....	.....	17.50	43.9	.....	34.85	.....	.....	.....
Total losses per 1,000 of mean strength..	49.8	.....	.....	.....	40.8	.....	.....	19.58	48.1	.....	39.51	.....	.....	.....

[a] The number of deaths is given as reported on International Table IX as the ratios therefrom afford better comparison with the same figures for American troops.

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Diseases.	Admission rates per 1,000 of mean strength.													Death rates per 1,000 of mean strength.												
	United States continental (enlisted men), year 1909.			British (United Kingdom), year 1908.	French (France), year 1907.	Prussian, year 1907.	Bavarian, year 1907.	Austro-Hungarian, year 1907.	Spanish, year 1907.	Belgian, year 1907.	Russian, year 1907.	Japanese, year 1907.	Dutch, year 1905.	United States continental (enlisted men), year 1909.			British (United Kingdom), year 1908.	French (France), year 1907.	Prussian, year 1907.	Bavarian, year 1907.	Austro-Hungarian, year 1907.	Spanish, year 1907.	Belgian, year 1907.	Russian, year 1907.	Japanese, year 1907.	Dutch, year 1905.
	White.	Colored.	Total.											White.	Colored.	Total.										
1 Alcoholismus acutus, including delirium tremens	24.20	3.06	23.47	0.9	0.35	0.11	0.12	(a)	0.03	0.11	0.01	0.02	0.17	0.11	....	0.10	0.04	....	0.01	....	(a)	....	....	0.002	....	....
2. Appendicitis typhlitis, perityphlitis	4.01	6.12	4.08	(a)	(a)	3.8	3.7	(a)	.40	(a)	1.7	1.08	(a)	.04	....	.03	(a)	(a)	.10	0.12	(a)	....	(a)	.06	0.05	(a)
3. Bronchitis acuta	34.37	19.89	33.87	b14.9	88.11	47.6	48.6	c94.2	32.77	33.73	22.5	33.79	80.8	....	....	....	.02	0.01	....	....	c0.03	0.09	....	....	....	....
4. Cholera Asiatica	....	....	....	.2	....	....	....	....	....	....	.1	.02	....	....	....	....	.16	....	....	....	....	....	....	.03	.01	....
5. Cholera nostras	.02	....	.02	....	....	....	....	.0	....	....	.01	....	....	....	....	....	....	....	....	....	.00	....	....	....	....	....
6. Diphtheria et croup	.63	....	.61	.2	1.43	.48	.15	.1	.02	.53	.1	.02	.14	.05	....	.05	.00	.02	.01	....	.01	....	....	.003	.01	....
7. Dysenteria	1.90	2.55	1.93	5.3	1.08	.01	.02	.1	.10	.06	.7	.56	.03	....	....	....	.15	.01	....	....	.01	....	0.03	.05	.11	....
8. Erysipelas	.54	....	.53	.3	2.32	.90	.97	1.9	4.58	.91	3.4	.07	2.04	.04	....	.03	.01	.03	.01	.06	.01	.08	.06	.07	....	....
9. Febris intermittens (malaria)	20.74	7.65	20.29	87.7	.90	.08	.05	2.2	24.11	.14	36.5	28.69	5.2	....	....	....	.21	....	....	....	.00	.02	....	.03	.06	....
10. Febris recurrens	....	....	....	....	....	....	....	(a)	.06	....	.2	....	....	....	....	....	....	....	....	....	(a)	....	....	.002	....	....
11. Fractura ossium	11.46	3.57	11.19	(a)	(a)	6.3	4.8	2.6	1.34	(a)	1.7	2.06	(a)	.34	0.52	.35	(a)	(a)	.02	.08	.01	....	(a)	.01	.03	(a)
12. Gonorrhea	124.49	147.37	125.27	40.7	18.35	12.2	10.9	28.1	28.41	19.99	30.2	17.10	17.0	....	....	....	....	....	....	.02	....	....	....	....	....	....
13. Hernia	3.68	4.59	3.71	3.0	7.47	2.1	1.5	6.1	3.98	5.34	2.5	.75	3.9	....	....	....	....	.01	....	....	....	....	....	.004	....	....
14. Influenza	35.97	4.08	34.87	19.2	22.86	13.7	11.8	3.2	35.29	17.92	25.6	7.48	3.0	.02	....	.02	.00	.22	.01	....	.00	.13	....	.05	.05	....
15. Insolatio (Hitzschlag coup de chaleur)	.07	....	.07	1.3	.20	.12	.24	.2	.04	.25	.04	.66	.03	....	....	....	.18	....	.01	....	....	....	....	....	.02	....
16. Luxationes articulorum	3.15	3.06	3.15	(a)	(a)	1.3	1.3	.6	.56	(a)	.6	.84	(a)	....	....	....	(a)	(a)	....	.02	....	.01	(a)	....	....	(a)
17. Meningitis cerebro-spinalis epidemica	.24	....	.23	.1	.21	.10	.06	(a)	.11	.14	.01	.31	.03	.13	....	.12	.04	.07	.05	.05	(a)	.09	.08	.01	.12	0.03
18. Morbilli	10.41	....	10.05	1.8	15.95	.46	.38	.7	5.79	.14	.3	4.32	1.4	.14	....	.14	.01	.09	....	....	.01	.02	....	.01	.01	....
19. Parotitis epidemica	12.54	....	12.11	.2	28.32	.96	1.8	1.4	5.16	1.22	2.1	.83	.14	....	....	....	....	.01	....	....	....	....	....	....	....	....
20. Pleuritis	2.54	5.61	2.64	(a)	9.11	3.3	3.0	5.7	2.76	3.02	9.4	13.79	(a)	.04	.52	.05	(a)	.10	.04	.09	.09	.07	....	.18	.21	(a)
21. Pneumonia crouposa sive lobaris	2.08	5.61	2.21	c3.3	3.60	5.0	6.3	4.9	2.66	2.52	5.2	5.02	4.7	.33	1.04	.35	c.31	.32	.22	.24	.21	.22	....	.38	.30	.21
22. Rheumatismus, articulorum	14.83	8.16	14.60	7.4	24.09	7.0	8.1	12.4	18.74	14.95	5.9	6.56	11.4	.02	....	.02	.01	.02	.02	.03	.01	....	.03	.01	....	.105
23. Scarlatina	.40	.51	.40	1.3	6.70	.93	1.0	.3	.26	.47	.1	....	1.6	.02	....	.02	.01	.15	.03	.02	.02	.03	....	.01	....	....
24. Scorbutus	.02	....	.02	....	....	.01	....	.3	.01	....	.8	....	....	....	....	....	....	....	....	....	....	....	....	.004	....	....
25. Syphilis	26.47	37.74	26.85	35.1	6.75	4.4	3.3	16.0	11.64	6.12	17.7	10.13	4.6	....	....	....	.04	....	....	....	.01	....	....	.01	.01	....
26. Trachoma	.40	....	.39	.1	.04	.32	....	4.5	....	.28	5.3	11.43	.07	....	....	....	....	....	....	....	....	....	....	....	....	....
27. Tuberculosis pulmonum	4.01	2.55	3.96	1.6	5.19	1.4	1.7	1.4	5.59	3.52	2.4	3.99	4.3	.52	.52	.52	.19	.37	.11	.11	.42	.63	.44	.45	.17	.39
28. Tuberculosis ceterorum organorum	.74	2.04	.79	.5	2.25	.44	.26	2.5	.33	.49	1.2	.54	1.2	.11	.52	.12	.06	.39	.09	.09	.19	.04	.08	.09	.10	.14
29. Typhus abdominalis	3.10	1.02	3.03	6.0	3.74	.41	.17	2.1	2.87	.86	5.5	7.53	1.1	.27	.52	.28	1.00	.53	.06	.02	.27	.69	.17	.89	1.23	.14
30. Typhus exanthematicus	....	....	....	....	....	....	....	....	....	....	.1	....	....	....	....	....	.00	....	....	....	....	....	....	.02	....	....
31. Ulcus molle	25.09	32.13	25.33	(a)	d2.73	2.1	.97	10.1	27.84	....	d12.2	10.42	(a)	....	....	....	(a)	....	....	....	....	....	....	....	....	(a)

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32. Variola	.02	.51	.04	.2	.03	....	....	.0	.35	.06	.2	.01	....	....	....	....	.01	....	....	....	....	.03	....	.04	....	....
33. Morbi auris	7.40	2.04	7.21	10.0	9.67	11.7	12.0	18.2	6.49	12.59	19.0	10.82	19.7	....	....	....	.04	.03	.01	.03	.01	.01	.03	.18	.01	....
34. Morbi cordis	2.65	5.61	2.75	6.1	3.59	3.6	2.5	6.3	8.97	4.15	4.0	1.54	2.1	.25	2.08	.31	.18	.05	.02	....	.05	.18	.03	.06	.05	.03
35. Morbi cutis	24.44	15.30	24.12	15.2	19.42	14.8	7.8	180.8	46.53	22.65	31.0	128.49	161.5	....	....	....	.00	....	....	....	.04	.04	....	.04	.02	....
36. Morbi mentis	1.62	2.04	1.63	.9	.61	1.3	1.2	1.1	.90	1.05	.7	.46	1.1	.02	....	.02	.01	.01	.01	....	....	....	....	.01	.01	.03
37. Morbi oculi	15.66	8.67	15.42	8.0	6.72	13.0	9.6	32.0	13.21	13.87	14.9	32.24	32.5	....	....	....	....	....	....	....	....	....	....	....	....	.07
38. Morbi systemat. urin. et sexual (excluding venerie et syphilis)	14.61	6.63	14.34	11.7	9.34	6.0	4.3	13.9	7.56	8.75	7.0	10.90	11.6	.20	....	.19	.13	.08	.05	.02	.06	.04	.03	.07	.11	.105

[a] Diseases not reported in table.

[b] Includes chronic bronchitis

[c] Includes broncho-pneumonia.

[d] Includes venereal adenitis.

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TABLE NO. 69.—*Showing the most important diseases, by departments, in the United States.*

Diseases.	Absolute numbers—Admissions by departments.													Proportionate numbers—Admissions per 1,000 of mean strength.												
	Lakes.	East.	Gulf.	Dakota.	Missouri.	Texas.	Colorado.	Columbia.	California.	General hospitals.	Total.	White.	Colored.	Lakes.	East.	Gulf.	Dakota.	Missouri.	Texas.	Colorado.	Columbia.	California.	General hospitals.	Total.	White.	Colored.
1. Alcoholismus acutus, including delirium tremens	110	530	126	69	98	51	41	122	169	25	1,341	1,335	6	23.38	30.03	25.83	26.54	8.89	14.35	19.96	27.11	30.15	50.09	23.48	24.20	3.06
2. Appendicitis, typhlitis, perityphlitis	35	69	16	27	20	16	6	18	16	10	233	221	12	7.44	3.91	3.28	10.38	1.82	4.50	2.92	4.00	2.85	17.89	4.08	4.01	6.12
3. Bronchitis acuta	165	752	126	153	241	41	81	126	230	20	1,935	1,896	39	35.08	42.61	25.83	58.85	21.87	11.53	39.44	27.99	41.03	35.78	33.87	34.37	19.89
4. Cholera asiatica	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5. Cholera nostras	....	....	....	1	....	....	....	....	....	....	1	1	....	.....	.....	.....	.38	.....	.....	.....	.....	.....	.....	.02	.02	.....
6. Diphtheria et croup	9	13	....	8	2	....	....	2	1	....	35	35	....	1.91	.74	.....	3.08	.18	.....	.....	.44	.18	.....	.61	.63	.....
7. Dysenteria	12	27	16	5	10	9	4	11	15	1	110	105	5	2.55	1.53	3.28	1.92	.91	2.53	1.95	2.44	2.68	1.79	1.93	1.90	2.55
8. Erysipelas	5	8	2	4	6	....	2	2	1	....	30	30	....	1.06	.45	.41	1.54	.54	.....	.97	.44	.18	.....	.53	.54	.....
9. Febris intermittens (malaria)	54	345	164	17	348	110	16	35	63	7	1,159	1,144	15	11.48	19.55	33.62	6.54	31.58	30.94	7.79	7.78	11.24	12.52	20.29	20.74	7.65
10. Febris recurrens	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11. Fractura ossium	50	155	50	34	130	48	25	53	85	9	639	632	7	10.63	8.78	10.25	13.08	11.80	13.50	12.17	11.78	15.17	16.10	11.19	11.46	3.57
12. Gonorrhea	796	2,054	661	320	1,356	428	203	573	688	77	7,156	6,867	289	169.22	116.38	135.51	123.08	123.06	120.39	98.83	127.31	122.75	137.75	125.27	124.49	147.37
13. Hernia	21	64	18	12	31	5	9	23	26	3	212	203	9	4.46	3.63	3.69	4.62	2.81	1.41	4.38	5.11	4.64	5.37	3.71	3.68	4.59
14. Influenza	363	606	66	105	269	60	78	279	129	37	1,992	1,984	8	77.17	34.34	13.53	40.38	24.41	16.88	37.97	61.99	23.02	66.19	34.87	35.97	4.08
15. Insolatio (Hitzschlag, coup de chaleur)	....	3	....	....	1	....	....	....	....	....	4	4	....	.....	.17	.....	.....	.09	.....	.....	.....	.....	.....	.07	.07	.....
16. Luxationes articulorum	18	60	15	11	32	8	9	13	14	....	180	174	6	3.83	3.40	3.08	4.23	2.90	2.25	4.38	2.89	2.50	.....	3.15	3.15	3.06
17. Meningitis cerebro-spinalis epidemica	1	1	1	2	4	....	1	....	3	....	13	13	....	.21	.06	.21	.77	.36	.....	.49	.....	.54	.....	.23	.24	.....
18. Morbilli	142	159	18	13	73	....	2	100	64	3	574	574	....	30.19	9.01	3.69	5.00	6.62	.....	.97	22.22	11.42	5.37	10.05	10.41	.....
19. Parotitis epidemica	153	126	20	16	271	23	....	48	31	4	692	692	....	32.53	7.14	4.10	6.15	24.59	6.47	.....	10.66	5.53	7.16	12.11	12.54	.....
20. Pleuritis	23	47	4	9	12	4	8	9	28	7	151	140	11	4.89	2.66	.82	3.46	1.09	1.13	3.89	2.00	5.00	12.52	2.64	2.54	5.61
21. Pneumonia crouposa sive lobaris	10	39	9	6	20	2	10	12	12	6	126	115	11	2.13	2.21	1.85	2.31	1.82	.56	4.87	2.67	2.14	10.73	2.21	2.08	5.61
22. Rheumatismus articulorum	120	221	20	52	214	24	37	49	83	14	834	818	16	25.51	12.52	4.10	20.00	19.42	6.75	18.01	10.89	14.81	25.04	14.60	14.83	8.16
23. Scarlatina	....	8	....	7	1	....	5	1	1	....	23	22	1	.....	.45	.....	2.69	.09	.....	2.43	.22	.18	.....	.40	.40	.51
24. Scorbutus	....	....	....	....	....	....	....	1	....	....	1	1	....	.....	.....	.....	.....	.....	.....	.....	.22	.....	.....	.02	.02	.....
25. Syphilis	170	428	186	116	264	93	47	103	113	14	1,534	1,460	74	36.14	24.25	38.13	44.62	23.96	26.16	22.88	22.88	20.16	25.04	26.85	26.47	37.74
26. Trachoma	6	10	2	....	1	1	....	1	1	....	22	22	....	1.28	.57	.41	.....	.09	.28	.....	.22	.18	.....	.39	.40	.....
27. Tuberculosis pulmonum	15	61	12	15	50	11	3	20	24	15	226	221	5	3.19	3.46	2.46	5.77	4.54	3.09	1.46	4.44	4.28	26.83	3.96	4.01	2.55
28. Tuberculosis ceterorum organorum	9	19	4	....	3	1	4	3	2	....	45	41	4	1.91	1.08	.82	.....	.27	.28	1.95	.67	.36	.....	.79	.74	2.04
29. Typhus abdominalis	10	41	15	4	54	25	6	8	5	5	173	171	2	2.13	2.32	3.08	1.54	4.90	7.03	2.92	1.78	.89	8.94	3.03	3.10	1.02
30. Typhus exanthematicus	....	....	....	....	....	....	....	....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31. Ulcus molle	178	324	210	40	324	127	26	65	141	12	1,447	1,384	63	37.84	18.36	43.05	15.38	29.40	35.72	12.66	14.44	25.16	21.47	25.33	25.09	32.13
32. Variola	....	....	....	....	....	....	1	1	....	....	2	1	1	.....	.....	.....	.....	.....	.....	.49	.22	.....	.....	.04	.02	.51

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33. Morbi auris	51	146	27	25	48	17	25	28	37	8	412	408	4	10.84	8.27	5.54	9.62	4.36	4.78	12.17	6.22	6.60	14.31	7.21	7.40	2.04
34. Morbi cordis	26	48	6	8	19	16	....	19	9	6	157	146	11	5.53	2.72	1.23	3.08	1.72	4.50	.....	4.22	1.61	10.73	2.75	2.65	5.61
35. Morbi cutis	159	471	175	53	181	66	23	73	161	7	1,369	1,339	30	33.80	26.69	35.88	20.38	16.43	18.57	11.20	16.22	28.72	12.52	23.97	24.27	15.30
36. Morbi mentis	11	31	8	2	11	8	2	7	9	4	93	89	4	2.34	1.76	1.64	.77	1.00	2.25	.97	1.56	1.61	7.16	1.63	1.61	2.04
37. Morbi oculi	163	226	66	55	132	40	41	57	89	12	881	864	17	34.65	12.81	13.53	21.15	11.98	11.25	19.96	12.66	15.88	21.47	15.42	15.66	8.67
38. Morbi systemat. urin. et sexual (excluding venerie et syphilis)	94	236	100	34	133	39	28	62	77	16	819	806	13	19.98	13.37	20.50	13.08	12.07	10.97	13.63	13.77	13.74	28.62	14.34	14.61	6.68

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TABLE No. 70.—*Comparative figures, army, by years 1905–1909.*

ABSOLUTE NUMBERS.

Army.	Mean strength.	Admissions to sick report.		Discharges on surgeon's certificate of disability.		Deaths.		Total losses.		Total days.				Constantly noneffective.			
										From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.		From all causes.		Excluding injuries, venereal diseases, vaccinia and alcoholism.	
		From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	Total.	In hospital.	Total.	In hospital.	Total.	In hospital.	Total.	In hospital.
Year 1909	74,319	79,000	46,809	1,270	918	370	221	1,640	1,139	1,125,333	994,411	597,032	534,125	3,083.10	2,724.41	1,635.70	1,463.36
Year 1908	65,406	77,704	46,110	1,248	928	414	217	1,662	1,195	1,021,690	888,590	566,864	502,635	2,791.50	2,427.84	1,548.81	1,373.32
Year 1907	53,803	65,546	39,774	1,107	805	319	177	1,426	982	906,750	781,140	512,030	453,791	2,484.25	2,140.10	1,402.82	1,243.36
Year 1906	56,443	72,071	45,506	1,523	1,182	358	183	1,881	1,365	1,025,815	850,393	591,750	505,930	2,810.45	2,329.84	1,621.23	1,386.11
Year 1905	56,901	73,742	44,910	1,464	1,102	368	190	1,832	1,292	1,016,230	841,488	583,602	495,130	2,784.19	2,305.45	1,598.95	1,356.52

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TABLE No. 70.—*Comparative figures, army, by years 1905–1909*—Continued.

PROPORTIONAL NUMBERS.

Army.	Mean strength.	Ratios per 1,000 of mean strength.												Average number of days lost.			
		Admissions to sick report.		Discharges on surgeon's certificate of disability.		Deaths.		Total losses.		Noneffective from sickness.				From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.	
										From all causes.		Excluding injuries, venereal diseases, vaccinia, and alcoholism.					
		From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	From all causes.	Excluding injuries, venereal diseases, vaccinia, and alcoholism.	Total.	In hospital.	Total.	In hospital.	For each soldier.	For each case.	For each soldier.	For each case.
Year 1909	74,319	1,062.99	629.84	16.84	12.18	4.91	2.93	21.75	15.11	41.48	36.66	22.01	19.69	15.14	14.24	8.03	12.75
Year 1908	65,406	1,188.03	704.98	18.48	13.75	6.13	3.21	24.61	16.96	42.68	37.12	23.68	21.00	15.62	13.15	8.67	12.29
Year 1907	53,803	1,218.26	739.25	20.15	14.65	5.81	3.22	25.96	17.87	46.17	39.78	26.08	23.11	16.85	13.83	9.52	12.87
Year 1906	56,443	1,276.88	806.23	26.00	20.18	6.11	3.12	32.11	23.30	49.79	41.28	28.72	24.56	18.17	14.23	10.48	13.00
Year 1905	56,901	1,295.97	789.27	25.00	18.82	6.28	3.24	31.28	22.06	48.93	40.52	28.10	23.84	17.86	13.78	10.26	13.00

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TABLE No. 71.—*Influence of disease in the army, by length of service, age, and arms of service, for the year 1909.*

LENGTH OF SERVICE.

	Mean strength.	Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly non-effective.	Ratios per 1,000 of mean strength.			
						Admitted.	Discharged on surgeon's certificate of disability.	Died.	Constantly non-effective.
Under 1 year	17,364	20,201	537	54	785.52	1,163.38	30.70	3.09	45.24
1 to 2 years	17,756	16,622	256	31	721.63	936.13	14.22	1.72	40.64
2 to 3 years	9,033	7,752	54	15	298.09	858.19	5.85	1.63	33.00
3 to 4 years	5,602	3,820	72	16	168.26	681.90	12.67	2.82	30.04
4 to 5 years	4,891	3,433	56	15	137.33	701.90	11.26	3.02	28.08
5 to 10 years	11,076	7,507	106	34	313.72	677.77	9.40	3.02	28.32
10 years and over	8,597	5,019	65	63	222.94	583.81	7.42	7.20	25.93
Total	74,319	64,354	1,146	228	2,647.49	865.92	15.20	3.02	35.62

AGE.

19 years and under	3,167	3,978	69	7	143.14	1,256.08	21.62	2.19	45.20
20 to 24 years	31,041	32,785	528	77	1,298.07	1,056.18	16.79	2.45	41.82
25 to 29 years	20,691	16,064	321	45	684.27	776.38	15.28	2.14	33.07
30 to 34 years	10,300	6,464	134	39	283.29	627.57	12.80	3.72	27.51
35 to 39 years	4,844	2,717	50	25	121.17	560.90	10.14	5.07	25.01
40 to 44 years	2,522	1,389	28	21	65.25	550.75	10.90	8.18	25.87
45 to 49 years	1,264	609	13	8	31.74	481.80	10.12	6.23	25.11
50 years and over	490	348	3	6	20.55	710.20	6.01	12.02	41.94
Total	74,319	64,354	1,146	228	2,647.49	865.92	15.20	3.02	35.62

ARMS OF SERVICE.

Infantry	25,321	21,032	379	84	948.31	830.61	14.66	3.25	37.45
Cavalry	12,530	11,445	159	34	460.40	913.41	12.43	2.26	36.75
Field Artillery	4,971	4,300	70	12	182.56	865.02	13.92	2.39	36.72
Coast Artillery	18,668	16,027	322	50	639.38	858.52	17.16	2.66	34.25
Ordnance	700	393	4	5	12.83	561.43	5.68	7.10	18.33
Engineers	1,842	1,273	14	8	63.00	691.10	7.45	4.26	34.20
Signal Corps	1,157	861	14	2	39.45	744.17	11.82	1.69	34.09
Medical Department	3,431	2,156	42	8	90.68	628.39	12.09	2.30	26.43
All others	5,699	6,867	142	25	210.89	1,204.95	24.81	4.37	37.00
Total	74,319	64,354	1,146	228	2,647.49	865.92	15.20	3.02	35.62

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INTERNATIONAL MILITARY MEDICAL STATISTICS FOR THE YEAR 1909.

The following tables are those agreed upon at the International Commission for the Unification of the Medical Statistics of Armies held at Budapest in 1894, at Madrid in 1903, and modified by the last meeting, held at Berlin in 1907. They are calculated for the United States Army proper (white and colored) and include enlisted men only. Dispositions include cases remaining from last year. Deaths include suicides and accidents. Days lost include those lost this year by cases remaining from last year.

Table I shows in absolute numbers, by departments, the mean strength of the command, the admissions to quarters, to hospital, and total admissions; the disposition of the sick, total, and the number returned to duty, died, and otherwise disposed of, and the total number of days of sickness.

Table II gives the same data in ratios per 1,000, and also shows the days lost per soldier and per admission.

Table III shows, by arms of service, the mean strength, the total admissions, and those to hospital only, the total dispositions, and the number of those returned to duty, and the number that died.

Table IV gives the same data as Table III by months.

Table V shows for each of 50 of the larger garrisons the mean strength, admissions to hospital, total admissions, and the deaths.

Table VI shows for each of the 38 diseases or disease groups agreed upon by the International Commission the number remaining under treatment at the commencement and close of the current year, the admissions and dispositions for the year, the total sick days, and the average number of days per case.

Table VII shows the admissions, by arms of service, for the diseases and disease groups referred to in Table VI.

Table VIII shows the same data as Table VII by months.

Table IX shows deaths by rank, by length of service, and by age.

Table X shows the same data as Table IX for discharges for physical disability.

INTERNATIONAL TABLE I.—*Movement of sick by army corps (departments), absolute numbers.*

Department.	Mean strength.	Admitted sick.			Sick disposed of.				Total days sick.
		Total.	To hospital.	To quarters.	Returned to duty (recovered).	Died.	Otherwise disposed of.	Total.	
United States (excluding Alaska):									
Department of the East	17,649	18,285	13,847	4,438	17,407	69	520	17,996	197,038
Department of the Gulf	4,878	5,494	4,337	1,157	5,277	16	181	5,474	68,199
Department of the Lakes	4,704	6,916	5,276	1,640	6,560	33	305	6,898	77,460
Department of the Missouri	11,019	9,573	7,739	1,834	9,310	41	278	9,629	123,068
Department of Dakota	2,600	3,204	2,673	531	3,052	13	118	3,183	36,912
Department of Texas	3,555	3,120	2,515	605	2,929	18	126	3,073	42,721
Department of the Colorado	2,054	2,169	1,702	467	2,055	12	100	2,167	28,133
Department of California	5,605	5,006	2,298	2,708	3,016	16	60	3,092	30,651
Department of the Columbia (excluding Alaska)	4,501	4,131	3,599	532	3,980	14	126	4,120	58,309
General hospitals	559	618	541	77	2,670	45	444	3,159	165,232
Total	57,124	58,516	44,527	13,989	56,256	277	2,258	58,791	827,723
Alaska	1,064	415	314	101	387	2	8	397	6,299

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INTERNATIONAL TABLE I.—*Movement of sick by army corps (departments,) absolute numbers*—Continued.

Department.	Mean strength.	Admitted sick.			Sick disposed of.				Total days sick.
		Total.	To hospital.	To quarters.	Returned to duty (recovered.	Died.	Otherwise disposed of.	Total.	
Philippines Division:									
Department of Luzon	6,873	10,806	8,133	2,673	9,354	36	243	9,633	121,631
Department of the Visayas	1,952	2,206	1,951	255	2,084	7	69	2,160	31,084
Department of Mindanao	3,883	4,154	3,753	401	3,961	27	89	4,077	58,025
Interisland transports	33	12	11	1	9	1	.....	10	182
Division hospital, Manila	103	136	125	11	1,200	14	46	1,260	35,545
Total	12,844	17,314	13,973	3,341	16,608	85	447	17,140	246,467
Cuba	604	482	307	175	545	1	21	567	6,524
Hawaii	1,014	1,197	756	441	1,114	2	36	1,152	19,452
Army transports	1,669	1,076	1,008	68	1,046	3	19	1,068	18,868
United States Army	74,319	79,000	60,885	18,115	75,956	370	2,789	79,115	1,125,333

INTERNATIONAL TABLE II.—*Movement of sick by army corps (departments), proportionate numbers.*

Department.	In 1,000 of mean strength.			In 1,000 disposed of.			Days lost.	
	Total admissions.	Admissions to hospital.	Deaths.	Returned to duty (recovered).	Died.	Otherwise disposed of.	Per soldier.	Per admission.
United States (excluding Alaska):								
Department of the East	1,036.04	784.58	3.91	967.27	3.83	28.90	11.16	10.78
Department of the Gulf	1,126.28	889.09	3.28	964.01	2.92	33.07	13.98	12.41
Department of the Lakes	1,470.24	1,121.60	7.02	951.00	4.78	44.22	16.47	11.20
Department of the Missouri	868.77	702.33	3.72	966.87	4.26	28.87	11.17	12.86
Department of Dakota	1,232.31	1,028.08	5.00	958.84	4.08	37.07	14.20	11.52
Department of Texas	877.64	707.45	5.06	953.14	5.86	41.00	12.02	13.69
Department of the Colorado	1,055.99	828.63	5.84	948.31	5.54	46.15	13.70	12.97
Department of California	893.13	409.99	2.85	975.43	5.17	19.40	5.47	6.12
Department of the Columbia (excluding Alaska)	917.80	799.60	3.11	966.02	3.40	30.58	12.95	14.11
General hospitals	.....	.....	.....	845.20	14.25	140.55	.....	.....
Total	1,024.37	779.48	4.84	956.88	4.71	38.41	14.49	14.15
Alaska	390.04	295.11	1.75	974.81	5.04	20.15	5.92	15.18
Philippines Division:								
Department of Luzon	1,572.24	1,183.33	5.24	971.03	3.74	25.23	17.70	11.26
Department of the Visayas	1,130.12	999.49	3.59	964.82	3.24	31.94	15.92	14.09
Department of Mindanao	1,069.79	966.52	6.95	971.55	6.62	21.83	14.94	13.97
Interisland transports	.....	.....	.....	900.00	100.00	.....	.....	.....
Division hospital, Manila	.....	.....	.....	952.40	11.10	36.51	.....	.....
Total	1,348.02	1,087.90	6.43	968.96	4.96	26.08	19.19	14.24
Cuba	798.01	508.28	1.66	961.20	1.76	37.04	10.80	13.54
Hawaii	1,180.47	745.56	1.84	967.01	1.74	31.25	19.18	16.25
Army transports	644.70	603.95	1.45	979.40	2.81	17.79	11.30	17.53
United States Army	1,062.99	819.24	4.91	960.07	4.68	35.25	15.14	14.24

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INTERNATIONAL TABLE III.—*Movement of sick by arms of service.*

Arms of service.	Absolute numbers.						Proportionate numbers.				
	Mean strength.	Sick admissions.		Sick disposed of.			Per 1,000 of mean strength.			Per 1,000 of sick disposed of.	
		Total.	To hospital.	Total.	Fit for duty (recovered).	Deaths.	Total sick admissions.	Admissions to hospital.	Deaths.a	Fit for duty (recovered).	Deaths.
Infantry	25,321	25,444	20,486	25,514	24,438	140	1,004.86	81.30	5.42	957.83	5.49
Cavalry	12,530	14,542	11,607	14,606	14,119	53	1,160.57	926.34	4.14	966.66	3.63
Coast artillery	18,668	20,386	14,683	20,427	19,636	78	1,092.03	786.10	4.16	961.28	3.82
Field artillery	4,971	5,390	4,239	5,313	5,123	31	1,084.29	852.75	6.17	964.24	5.83
Engineers	1,842	1,521	1,102	1,513	1,456	10	825.73	598.26	5.32	962.33	6.61
Ordnance	700	473	114	471	456	7	675.71	162.86	9.94	968.15	14.86
Signal corps	1,157	988	581	1,003	956	3	853.93	502.16	2.53	953.14	2.99
Hospital corps	3,431	2,437	1,958	2,416	2,305	16	710.29	570.68	4.61	954.06	6.62
Others	5,699	7,819	6,115	7,852	7,467	32	1,371.99	1,072.99	5.59	950.97	4.08
Total	74,319	79,000	60,885	79,115	75,956	370	1,062.99	812.25	4.91	960.07	4.68

a Ratios for deaths based on mean strength, present and absent, total 75,399.

INTERNATIONAL TABLE IV.—*Movement of sick by months, American troops at home.*

Month.	Absolute numbers.						Proportionate numbers.				
	Mean strength.	Sick admissions.		Sick disposed of.			Per 1,000 of mean strength.			Per 1,000 sick disposed of.	
		Total.	To hospital.	Total.	Fit for duty (recovered).	Deaths.	Total sick admissions.	Admissions to hospital.	Deaths. (a)	Fit for duty (recovered).	Deaths.
January	56,078	5,526	4,244	5,287	4,990	28	98.54	75.68	0.49	943.82	5.30
February	58,261	5,346	4,177	5,347	5,031	24	91.76	71.69	.41	940.90	4.49
March	58,846	6,581	4,954	6,454	6,159	30	111.83	84.19	.51	954.29	4.65
April	57,802	5,720	4,465	5,865	5,589	25	98.96	77.25	.44	952.94	4.26
May	56,966	4,664	3,487	5,077	4,785	26	81.89	61.22	.46	942.46	5.12
June	56,189	4,526	3,395	4,579	4,318	29	80.55	60.42	.52	943.00	6.33
July	55,261	4,516	3,315	4,605	4,401	20	81.72	59.99	.36	957.00	4.34
August	56,722	4,685	3,491	4,818	4,627	20	82.60	61.54	.37	960.56	4.15
September	56,867	4,032	3,020	4,120	3,990	16	70.90	53.11	.28	968.45	3.88
October	57,478	4,255	3,231	4,213	4,053	15	74.03	56.21	.26	962.02	3.56
November	57,399	4,205	3,254	4,146	4,007	23	73.26	56.69	.40	966.47	5.55
December	57,630	4,460	3,494	4,459	4,306	21	77.39	60.63	.36	965.69	4.71
Total	57,124	58,516	44,527	58,970	56,256	277	1,024.37	779.48	4.84	953.98	4.70

a Ratios for deaths based on mean strength, present and absent, total 57,274.

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INTERNATIONAL TABLE IV (continued).—*Movement of sick by months, American troops in the Philippine Islands.*

Month.	Absolute numbers.						Proportionate numbers.				
	Mean strength.	Sick admissions.		Sick disposed of.			Per 1,000 of mean strength.			Per 1,000 sick disposed of.	
		Total.	To hospital.	Total.	Fit for duty (recovered).	Deaths.	Total sick admissions.	Admissions to hospital.	Deaths. (a)	Fit for duty (recovered).	Deaths.
January	12,633	1,349	1,009	1,285	1,248	11	106.78	84.62	0.87	971.21	8.56
February	12,493	1,213	971	1,133	1,096	6	97.09	77.72	.47	967.34	5.30
March	12,322	1,332	1,096	1,340	1,299	8	108.10	88.95	.62	969.40	5.97
April	13,146	1,341	1,139	1,291	1,244	7	102.01	86.64	.50	963.60	5.42
May	13,494	1,612	1,324	1,537	1,486	6	119.46	98.12	.45	966.82	3.90
June	13,302	1,702	1,238	1,669	1,603	11	127.95	93.07	.82	960.46	6.59
July	13,027	1,534	1,267	1,591	1,537	8	117.76	97.26	.61	966.06	5.03
August	13,202	1,607	1,182	1,554	1,509	4	121.72	89.53	.28	971.05	2.57
September	12,917	1,456	1,248	1,495	1,453	5	112.72	96.62	.38	971.91	3.34
October	12,654	1,532	1,301	1,455	1,415	5	121.07	102.81	.38	972.50	3.44
November	12,331	1,375	1,082	1,448	1,409	11	111.51	87.75	.85	973.06	7.60
December	12,606	1,261	1,056	1,342	1,309	3	100.03	83.77	.23	975.41	2.24
Total	12,844	17,314	13,973	17,140	16,608	85	1,348.02	1,087.90	6.43	968.96	4.96

a Ratios for deaths based on mean strength, present and absent, total 13,214.

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INTERNATIONAL TABLE V.—*Movement of sick in the larger garrisons.*

Garrisons.	Mean strength.	Total admissions.		Admissions to hospital.		Deaths.	
		Absolute number.	Per 1,000 of mean strength.	Absolute number.	Per 1,000 of mean strength.	Absolute number.	Per 1,000 of mean strength.
Presidio of San Francisco, Cal	2,442	2,041	835.79	(a)	.....	2	0.82
Fort Leavenworth, Kans	2,305	1,995	865.51	1,736	753.14	10	4.34
Fort Riley, Kans	2,253	1,653	733.69	1,453	644.92	6	2.66
Fort D. A. Russell, Wyo	1,944	1,532	788.07	1,247	641.46	12	6.17
Fort Sam Houston, Tex	1,815	1,534	845.18	1,313	723.42	11	6.06
Vancouver Barracks, Wash	1,314	1,135	863.77	1,091	830.29	3	2.28
Fort Monroe, Va	1,239	1,441	1,163.03	1,155	932.20	9	7.26
Columbus Barracks, Ohio	1,111	2,459	2,213.32	2,226	2,003.60	8	7.20
Fort Snelling, Minn	1,107	1,547	1,397.47	1,273	1,149.95	7	6.32
Fort Slocum, N. Y	1,080	1,824	1,688.89	1,464	1,355.56	4	3.70
Jefferson Barracks, Mo	1,052	1,340	1,273.76	1,112	1,057.03	5	4.75
Fort Sheridan, Ill	943	1,201	1,273.59	998	1,058.32	10	10.60
Presidio of Monterey, Cal	932	568	609.44	538	577.25	5	5.36
Fort Benjamin Harrison, Ind	866	1,255	1,449.19	735	848.73	8	9.24
Fort Hancock, N. J	837	756	903.23	534	637.99	3	3.58
Fort Douglas, Utah	757	591	780.71	510	673.71	5	6.61
Fort Des Moines, Iowa	754	730	968.17	510	676.39	.....	.....
Fort Myer, Va	747	801	1,072.29	738	987.95	.....	.....
Fort Totten, N. Y	743	901	1,212.65	593	798.12	4	5.38
Fort Oglethorpe, Ga	743	730	982.50	704	947.51	1	1.35
Fort Adams, R. I	711	839	1,180.03	706	992.97	3	4.22
Fort Worden, Wash	708	623	879.94	547	772.60	4	5.65
Fort McPherson, Ga	699	805	1,151.65	753	1,077.25	4	5.72
West Point (Military Academy), N.Y	668	725	1,085.33	550	823.35	1	1.50
Fort Ethan Allen, Vt	635	408	642.52	355	559.06	4	6.30
Fort Logan, Colo	618	824	1,333.33	569	920.71	5	8.09
Fort Barrancas, Fla	609	750	1,231.53	412	676.52	1	1.64
Fort Gibbon, Alaska	255	64	250.98	54	211.76	.....	.....
Fort William H. Seward, Alaska	189	99	523.81	87	460.32	.....	.....
Fort Liscum, Alaska	181	70	386.74	62	342.54	1	5.52
Fort Davis, Alaska	148	68	459.46	38	256.76	1	6.76
Fort St. Michael, Alaska	146	40	273.97	31	212.33	.....	.....
Fort Egbert, Alaska	145	74	510.34	42	289.66	.....	.....
Schofield Barracks (Oahu Cantonment), Hawaii	516	563	1,091.09	264	511.63	.....	.....
Fort Shafter, Hawaii	231	393	1,701.30	337	1,458.87	2	8.66
Fort De Russey, Hawaii	152	131	861.84	72	473.68	.....	.....
Fort William McKinley, P. I	2,620	3,669	1,400.38	3,102	1,183.96	12	4.58
Jolo Jolo, P. I	1,020	1,269	1,244.12	1,234	1,209.80	14	13.73
Camp Keithley, P. I	900	755	838.89	695	772.22	5	5.55
Camp Stotsenburg, P. I	844	2,100	2,488.15	1,818	2,154.03	2	2.37
Camp Jossman, P. I	784	1,027	1,309.95	858	1,094.39	2	2.55
Parang, P. I	780	994	1,274.36	904	1,158.97	6	7.69
Camp McGrath, P. I	778	1,703	2,188.95	1,103	1,417.74	9	11.57
Fort Mills, P. I	637	824	1,293.56	657	1,031.40	6	9.42
Cuartel de España, P. I	565	914	1,617.70	275	486.73	1	1.77
Malabang, P. I	388	418	1,077.32	321	827.32	1	2.58
Camp Overton, P. I	359	272	757.66	235	654.60	.....	.....
Camp Bumpus, P. I	351	442	1,259.26	409	1,165.24	1	2.85
Zamboanga, P. I	321	341	1,062.31	315	981.31	.....	.....
Camp Downes, P. I	304	187	615.13	182	598.68	2	6.58

a All hospital cases treated in General Hospital, San Francisco, Cal.

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INTERNATIONAL TABLE VI.—*Movement of sick according to most important diseases.*

No. International nomenclature.	Diseases of the international nosological table.	Absolute numbers.									Proportionate numbers.					
		Remaining at close of 1908.	Admitted in 1909.	Total remaining and admitted.	Disposed of in 1909.				Remaining at close of 1909.	Total days sick in 1909.	Per 1,000 of mean strength.		Per 1,000 disposed of.			Average days of treatment.
					Fit for duty.	Died.	Otherwise.	Total.			Admissions.	Deaths.	Fit for duty.	Died.	Otherwise.	
1	Alkoholismus acutus, including delirium tremens	16	1,664	1,680	1,609	6	50	1,665	15	7,133	22.39	.08	966.37	3.60	30.03	4.29
2	Appendicitis, typhilitis, and perityphlitis	21	347	368	320	6	6	332	36	12,255	4.67	.08	963.86	18.07	18.07	35.32
3	Bronchitis acuta	51	2,329	2,380	2,286	.....	38	2,324	56	15,205	31.34	.....	982.65	.....	16.35	6.53
4	Cholera Asiatica	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	Cholera nostras	.....	2	2	2	.....	.....	2	.....	8	.03	.....	1,000.00	.....	.....	4.00
6	Diphtheria et croup	3	35	38	35	3	.....	38	.....	695	.47	.04	921.05	78.95	.....	19.86
7	Dysenteria	37	675	712	635	14	25	674	38	20,864	9.08	.19	942.14	20.77	37.09	30.91
8	Erysipelas	3	31	34	25	2	5	32	2	600	.42	.03	781.24	62.50	156.26	19.35
9	Febris intermittens (malaria)	25	2,196	2,221	2,172	.....	39	2,211	10	15,658	29.55	.....	982.36	.....	17.64	7.13
10	Febris recurrens	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	Fractura ossium	94	804	898	754	24	15	793	105	36,255	10.81	.33	950.81	30.27	18.92	45.09
12	Gonorrhea	531	10,090	10,621	9,683	.....	385	10,068	553	222,924	135.77	.....	961.76	.....	38.24	22.09
13	Hernia	37	268	305	238	.....	37	275	30	10,743	3.60	.....	865.44	.....	134.56	40.09
14	Influenza	16	2,008	2,024	1,956	1	40	1,997	27	11,670	27.02	.01	979.47	.50	20.03	5.81
15	Insolatio (Hitzschlag, coup de chaleur)	.....	7	7	6	.....	1	7	.....	131	.09	.....	857.14	.....	142.86	18.71
16	Luxationes articulorum	7	219	226	213	.....	6	219	7	3,710	2.95	.....	972.60	.....	27.40	16.94
17	Meningitis, cerebro-spinalis, epidemica	2	14	16	7	8	1	16	.....	574	.19	.11	437.55	500.00	62.55	41.00
18	Morbilli	66	580	646	574	8	50	632	14	13,208	7.80	.11	908.22	12.66	79.12	22.77
19	Parotitis epidemica	7	720	727	686	.....	40	726	1	11,067	9.69	.....	944.90	.....	55.10	15.37
20	Pleuritis	12	190	202	171	3	16	190	12	6,029	2.56	.04	900.00	15.79	84.21	31.73
21	Pneumonia crouposa sive lobaris	8	154	162	111	22	11	144	18	4,439	2.07	.29	770.83	152.78	76.39	28.82
22	Rheumatismus articulorum	55	980	1,035	916	1	68	985	50	14,239	13.19	.01	929.95	1.02	69.03	14.53
23	Scarlatina	.....	23	23	17	1	1	19	4	693	.31	.01	894.74	52.63	52.63	30.13
24	Scorbutus	.....	1	1	1	.....	.....	1	.....	10	.01	.....	1,000.00	.....	.....	10.00
25	Syphilis	164	2,263	2,427	2,019	.....	180	2,199	228	82,429	30.44	.....	918.14	.....	81.86	36.42
26	Trachoma	6	32	38	24	.....	6	30	8	1,346	.43	.....	800.00	.....	200.00	42.06
27	Tuberculosis pulmonum a	145	297	442	45	35	167	247	195	69,724	3.99	.46	182.19	141.70	676.11	234.76
28	Tuberculosis ceterorum organorum	10	53	63	33	8	11	52	11	3,980	.70	.11	634.61	153.85	211.54	75.09
29	Typhus abdominalis	27	267	294	217	19	1	237	57	17,413	3.59	.25	915.61	80.17	4.22	65.22
30	Typhus exanthematicus	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	Ulcus molle	131	2,287	2,418	2,199	.....	76	2,275	143	49,155	30.77	.....	966.59	.....	33.41	21.49
32	Variola	3	2	5	4	.....	.....	4	1	83	.03	.....	1,000.00	.....	.....	41.50
33	Morbi auris	22	581	603	548	.....	36	584	19	10,666	7.82	.....	938.36	.....	61.64	18.36

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34	Morbi cordis [b]	14	187	201	88	26	69	183	18	7,817	2.52	.35	480.97	142.08	377.05	41.80
35	Morbi cutis [c]	42	1,828	1,870	1,795	.....	27	1,822	48	17,450	24.59	.....	985.18	.....	14.82	9.55
36	Morbi mentis [d]	19	120	139	7	1	121	129	10	7,601	1.62	.01	54.26	7.75	937.99	12.01
37	Morbi oculi	45	1,121	1,166	1,081	.....	52	1,133	33	14,585	15.08	.....	954.10	.....	45.90	64.09
38	Morbi systemat. urin. et sexual (excluding venerie et syphilis)	41	1,050	1,091	960	12	75	1,047	44	18,117	14.13	.16	916.91	11.46	71.63	17 25

[a] Includes tuberculosis of the lungs and larynx.
[b] Includes pericarditis and endocarditis.
[c] Includes diseases of the skin proper.
[d] Includes insanity only.

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INTERNATIONAL TABLE VII.—*Most important diseases by arms of service.*

No.	Diseases of the international nosological table.	Absolute numbers—Admissions by arms of service.									Proportionate numbers—Admissions per 1,000 of mean strength.								
		Infantry.	Cavalry.	Coast artillery.	Field artillery.	Engineers.	Ordnance.	Signal corps.	Hospital Corps.	Others.	Infantry.	Cavalry.	Coast artillery.	Field artillery.	Engineers.	Ordnance.	Signal Corps.	Hospital Corps.	Others.
1	Alkoholismus acutus, including delirium tremens	597	116	642	52	29	24	26	93	85	23.58	9.26	34.39	10.46	15.74	34.29	22.47	27.11	14.91
2	Appendicitis, typhlitis, and perityphlitis	117	47	64	17	5	....	7	38	52	4.62	3.75	3.43	3.42	2.71	.....	6.05	11.08	9.12
3	Bronchitis acuta	577	405	792	113	37	34	31	87	253	22.79	32.32	42.43	22.73	20.09	48.57	26.79	25.36	44.39
4	Cholera Asiatica	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	Cholera nostras	1	1	.....	.....	.....	.....	.....	.....	.....	.04	.08	.....	.....	.....	.....	.....	.....	.....
6	Diphtheria et croup	5	.....	6	7	1	....	1	3	12	.20	.....	.32	1.41	.54	.....	.86	.87	2.11
7	Dysenteria	365	138	61	31	39	....	7	24	10	14.42	11.01	3.27	6.24	21.17	.....	6.05	6.99	1.75
8	Erysipelas	14	2	5	3	.....	1	.....	1	5	.55	.16	.27	.60	.....	1.43	.....	.29	.88
9	Febris intermittens (malaria)	592	625	385	158	62	6	21	70	277	23.38	49.88	20.62	31.78	33.66	8.57	18.15	20.40	48.61
10	Febris recurrens	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	Fractura ossium	258	183	191	71	18	7	7	19	50	10.19	14.60	10.23	14.28	9.77	10.00	6.05	5.54	8.77
12	Gonorrhea	3,716	2,004	2,313	724	199	6	130	243	755	146.76	159.94	123.90	145.64	108.03	8.57	112.36	70.82	132.48
13	Hernia	85	52	74	13	2	1	5	12	24	3.36	4.15	3.96	2.62	1.09	1.43	4.32	3.50	4.21
14	Influenza	658	148	707	151	37	25	18	118	146	25.99	11.81	37.87	30.38	20.09	35.71	15.56	34.39	25.62
15	Insolatio (Hitzschlag, coup de chaleur)	3	1	.....	2	1	.....	.....	.....	.....	.12	.08	.....	.40	.54	.....	.....	.....	.....
16	Luxationes articulorum	80	39	55	12	3	2	1	6	21	3.16	3.11	2.95	2.41	1.63	2.86	.86	1.75	3.68
17	Meningitis, cerebro-spinalis, epidemica	5	.....	4	1	.....	.....	.....	.....	4	.20	.....	.21	.20	.....	.....	.....	.....	.70
18	Morbilli	155	23	222	22	5	....	2	8	143	6.12	1.84	11.89	4.43	2.71	.....	1.73	2.33	25.09
19	Parotitis	148	52	175	36	37	1	19	18	234	5.84	4.15	9.37	7.24	20.09	1.43	16.42	5.25	41.06
20	Pleuritis	86	18	45	8	1	....	1	11	20	3.40	1.44	2.41	1.61	.54	.....	.86	3.21	3.51
21	Pneumonia crouposa sive lobaris	59	20	35	2	7	....	3	10	18	2.33	1.60	1.87	.40	3.80	.....	2.59	2.91	3.16
22	Rheumatismus articulorum	335	107	235	70	25	14	12	45	137	13.23	8.54	12.59	14.08	13.57	20.00	10.37	13.12	24.04
23	Scarlatina	12	1	1	5	.....	.....	.....	.....	4	.47	.08	.05	1.01	.....	.....	.....	.....	.70
24	Scorbutus	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.08	.....	.....	.....	.....	.....	.....	.....
25	Syphilis	947	456	458	146	62	4	23	50	117	37.40	36.39	24.53	29.37	33.66	5.71	19.88	14.57	20.53
26	Trachoma	11	3	5	.....	.....	....	1	.....	12	.43	.24	.27	.....	.....	.....	.86	.....	2.11
27	Tuberculosis pulmonum [a]	101	48	60	20	9	5	5	33	16	3.99	3.83	3.21	4.02	4.89	7.14	4.32	9.62	2.81
28	Tuberculosis ceterorum organorum	19	3	13	.....	3	1	.....	4	10	.75	.24	.70	.....	1.63	1.43	.....	1.17	1.75
29	Typhus abdominalis	130	26	20	58	16	....	2	8	7	5.13	2.08	1.07	11.67	8.69	.....	1.73	2.33	1.23
30	Typhus exanthematicus	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	Ulcus molle	864	519	467	193	37	1	26	31	149	34.12	41.42	25.02	38.82	20.09	1.43	22.47	9.04	26.15
32	Variola	1	.....	.....	.....	.....	.....	.....	.....	1	.04	.....	.....	.....	.....	.....	.....	.....	.18
33	Morbi auris	188	96	147	37	5	3	6	19	80	7.42	7.66	7.87	7.44	2.71	4.29	5.19	5.54	14.04

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34	Morbi cordis [b]	59	25	54	13	1	1	3	4	27	2.33	2.00	2.89	2.62	.54	1.43	2.59	1.17	4.74
35	Morbi cutis [c]	627	287	544	93	36	9	8	32	192	24.76	22.91	29.14	18.71	19.54	12.86	6.91	9.33	33.09
36	Morbi mentis [d]	37	19	36	6	2	4	1	8	7	1.46	1.52	1.93	1.21	1.09	5.71	.86	2.33	1.23
37	Morbi oculi	319	196	288	69	18	4	16	40	171	12.56	15.64	15.43	13.88	9.77	5.71	13.83	11.66	30.01
38	Morbi systemat. urin. as sexual (excluding venerie et syphilis)	290	158	310	75	13	9	20	40	135	11.45	12.61	16.60	15.09	7.06	12.86	17.29	11.66	23.69

[a] Includes tuberculosis of the lungs and larynx.
[b] Includes pericarditis and endocarditis.
[c] Diseases of the skin proper only.
[d] Insanity only.

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INTERNATIONAL TABLE VIII.—*Most important diseases, by months.*

Number of international nomenclature.	Diseases of the international nosological table.	Admissions, by months.											
		January.	February.	March.	April.	May.	June.	July.	August.	September.	October	November.	December.
1	Alkoholismis acutus, including delirium tremens	145	125	151	123	123	153	129	135	124	130	150	176
2	Appendicitis, typhlitis, perityphilitis	27	22	30	27	39	33	25	33	31	22	29	29
3	Bronchitis acuta	275	255	364	259	172	110	98	117	124	153	179	223
4	Cholera Asiatica												
5	Cholera nostras				1		1						
6	Diphtheria et croup	2	4	6	5	8	7		1			2	
7	Dysenteria	61	42	35	36	60	78	87	85	43	56	64	28
8	Erysipelas	3	5	9	4	2	1		1	2	2		2
9	Febris intermittens (malaria) [a]	131	146	142	170	218	230	225	339	261	193	80	61
10	Febris recurrens												
11	Fractura ossium	55	71	73	66	65	55	79	77	60	61	68	74
12	Gonorrhea	930	872	989	918	805	815	833	792	778	813	768	777
13	Hernia	32	23	25	19	21	16	18	24	25	13	31	21
14	Influenza	164	281	706	410	103	41	34	26	19	48	70	106
15	Insolatio (Hitzschlag, coup de chaleur)					3	3	1					
16	Luxationes, articulorum	20	12	20	21	15	20	19	18	9	22	28	15
17	Meningitis cerebro-spinales epidemica	6	2	2	1	2							1
18	Morbilli	122	128	108	97	53	33	6		6	4	3	20
19	Parotitis epidemica	53	130	200	166	82	49	18	4	4	5	6	3
20	Pleuritis	13	19	18	21	24	16	13	11	16	8	18	13
21	Pneumonia crouposa sive lobaris	12	12	19	31	19	6	7	4	9	9	6	20
22	Rheumatismus articulorum	88	86	111	120	140	86	62	54	48	59	63	63
23	Scarlatina	2	4	4	3	2	4						4
24	Scorbutus			1									
25	Syphilis	204	167	218	190	212	185	181	184	145	199	195	183
26	Trachoma	7	4		2	2	1	3	4	2	1	2	4
27	Tuberculosis pulmonum [b]	34	35	30	34	27	26	24	17	17	21	17	15
28	Tuberculosis ceterorum organorum	11	7	7	3	2	2	2	4	1	6	5	3
29	Typhus abdominalis	4	13	13	8	15	17	31	22	16	91	25	12
30	Typhus exanthematicus												
31	Ulcus molle	192	194	209	197	172	136	171	197	190	210	222	197
32	Variola		1										1
33	Morbi auris	42	48	49	51	63	38	61	56	46	47	47	33
34	Morbi cordis [c]	14	19	16	22	11	24	19	19	11	13	9	10
35	Morbi cutis [d]	135	154	147	136	130	208	163	195	131	144	99	186
36	Morbi mentis [e]	20	9	9	10	14	9	6	14	7	3	17	2
37	Morbi oculi	123	95	128	136	114	75	79	69	70	71	82	79
38	Morbi systemat. urin. et sexual (excluding venerie et syphilis)	103	93	117	115	84	81	82	67	70	88	66	84

[a] Malarial fever, intermittent only. [b] Includes tuberculosis of larynx. [c] Includes pericarditis and endocarditis. [d] Diseases of the skin proper only. [e] Insanity only.

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INTERNATIONAL TABLE IX.—*Deaths, by rank, by length of service, and by age.*

Causes of death.		Total number of deaths (enlisted men).		Deaths, by rank and length of service.				Deaths, by age.					
		Absolute numbers.	Per 1,000 of mean strength.	Noncommissioned officers.	Soldiers in first year of service.	Soldiers in second year of service.	Soldiers in third year of service and beyond.	20 and under.	21 to 25.	26 to 30.	31 to 35.	36 to 40.	41 and over.
Death from sickness	Soldiers present with troops	214	2.84	52	52	28	82	13	78	38	37	21	27
	Soldiers absent from troops	14	.19	4	1	1	8	....	1	3	3	1	6
Accidental deaths *	Soldiers present with troops	36	.48	6	8	5	17	2	11	10	5	2	6
	Soldiers absent from troops	73	.97	11	15	11	36	2	33	14	13	6	5
Suicides	Soldiers present with troops	10	.13	2	2	2	4	....	3	2	4	1	....
	Soldiers absent from troops	23	.31	8	2	....	13	....	6	9	5	2	1
Grand total		370	4.91	83	80	47	160	17	132	76	67	33	45

* Includes 15 homicides.

INTERNATIONAL TABLE X.—*Discharges from the army for physical disability, temporary or permanent, by rank, length of service, and by age.*

Causes of discharge.	Total discharges (enlisted men).		Rank and length of service.				Age.					
	Absolute numbers.	Per 1,000 of mean strength.	Noncommissioned officers.	Soldiers in first year of service.	Soldiers in second year of service.	Soldiers in third year of service and beyond.	20 and under.	21 to 25.	26 to 30.	31 to 35.	36 to 40.	41 and over.
Physical disability existent prior to enlistment	486	6.45	6	344	106	30	65	279	98	38	4	2
Physical disability incident to service	545	7.23	72	169	87	217	38	202	158	82	34	31
Physical disability not incident to service	239	3.17	9	89	76	65	18	135	55	19	6	6
Grand total	1,270	16.84	87	602	269	312	121	616	311	139	44	39

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REPORT OF THE PAYMASTER-GENERAL.

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REPORT OF THE PAYMASTER-GENERAL.

WAR DEPARTMENT,
OFFICE OF THE PAYMASTER-GENERAL,
Washington, September 1, 1910.

SIR: I have the honor to submit the following report for the fiscal year ended June 30, 1910:

On July 1, 1909, officers of the Pay Department were charged with public funds aggregating	$2,862,641.75
During the fiscal year these officers received:	
From the United States Treasury	47,275,521.30
From soldiers' deposits	1,879,469.29
From army paymasters' collections	1,163,405.30
Total balances and receipts	53,181,037.64
Accounted for as follows:	
Expended on account of pay of the army	42,972,829.86
Expended on account of mileage to officers and contract surgeons	524,155.37
Expended on account of Army War College	7,641.60
Expended on account of pay of Military Academy	558,458.35
Expended on account of soldiers' deposits	1,498,080.18
Expended on account of encampment and maneuvers organized militia	49,340.98
Expended on account of expenses Brownsville court of inquiry	22,442.04
Total expenditures	45,632,948.38
Surplus funds deposited to credit of United States Treasurer	338,404.31
Soldiers' deposits deposited to credit of United States Treasurer	1,879,469.29
Army paymasters' collections deposited to credit of United States Treasurer	1,163,405.30
Balance charged to officers June 30, 1910	[a] 4,166,810.36
Total accounted for	53,181,037.64

The appropriations for the pay of the army and the Military Academy, for expenses of the Army War College, for expenses of Brownsville court of inquiry, and allotment of funds for the payment of the militia under section 15 of the act of January 21, 1903, amounted to $46,215,179.07 for the fiscal year. The gross accountability involved in the transactions of the disbursing officers and special disbursing agents are shown by the table hereafter appearing in this report. Detailed statements of the transactions of all officers in this department are appended hereto. The payments to the army in the United States and in our outlying possessions have been made with promptness, and it is a pleasure to commend the officers and clerks for their faithfulness in the various duties intrusted to them.

[a] The balance of $4,166,810.36, charged to officers on June 30, 1910, was needed for the muster of June 30, to be paid during the month of July, as the expenditures average $3,900,000 per month.

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ALLOTMENTS.

During the period, July 1, 1909, to June 30, 1910, there was disbursed $597,729.40 in payment of allotments made by enlisted men, which is $106,424.85 in excess of the disbursements made for the same purpose for the prior fiscal year. The total number of allotments in force on June 30, 1910, was 3,837.

I again recommend a repeal of so much of section 16 of the act of March 2, 1899 (30 Stat., 981), as permits enlisted men to make allotments of pay "for their own savings, or for other purposes," with a view to restricting the allotment privileges to the support of families or relatives. As the Government has provided a system whereby enlisted men are permitted to make deposits of their pay with army paymasters and to receive interest thereon at 4 per cent per annum, it would assuredly not impose any hardship upon the soldiers to repeal the provision of law which permits them to make allotments for their own savings.

BENEFICIARIES.

The act of Congress approved May 11, 1908, as amended by an act approved March 3, 1909, provides for the payment of a gratuity of six months' pay to the widow or designated beneficiary of any officer or enlisted man on the active list of the army who dies from wounds or disease not the result of his own misconduct. The law further provides that from this gratuity there shall be deducted and turned over to the Quartermaster's Department the expenses of interment contracted by the Government, not exceeding $75 in the case of an officer and $35 in the case of an enlisted man. The rate of the gratuity is the actual rate of pay, as distinguished from allowances, to which the officer or enlisted man was entitled at date of death.

The Paymaster-General is charged by the law with the payment of the gratuity of six months' pay, and during the period from July 1, 1909, to June 30, 1910, payments were made to the beneficiaries of 17 officers, aggregating $29,539, and of 306 enlisted men, aggregating $46,044.02, making a total disbursed of $75,583.02. These payments were made with the utmost promptness.

CLERKS, PAYMASTER-GENERAL'S OFFICE.

In my last two preceding reports attention was called to the fact that since 1870 no change or increase has been made in the salaries of the clerks in this office. To my mind the clerks are unquestionably deserving of an increase, primarily for the character of the duties which they perform, and secondarily, to meet the steadily increasing cost of living. Statistics show that since 1896 there has been an approximate increase of 50 per cent in the cost of living, and that mercantile, commercial, and other business corporations have recognized the necessity for paying higher salaries and granted increases accordingly. It would certainly seem that similar recognition should be accorded employees of the Government, and the Paymaster-General again most earnestly recommends an increase in the statutory salaries now provided for the various classes of government clerks. The clerks in this office by their hearty cooperation and faithful application to duty have assuredly earned the recognition recommended.

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As stated in my last annual report, the estimates for salaries in the executive departments and establishments, prepared by the committee on grades and salaries under executive order of June 11, 1907, and published in House of Representatives Document No. 648, Sixtieth Congress, first session, represent, in my opinion, a very close approximation of what is desired and merited in way of reclassification of grades and salaries, and it is hoped that these estimates will be given favorable consideration by Congress during the coming session. The present movement for the retirement of clerks with sufficient compensation after they have reached an age which incapacitates them for the performance of their full duties is certainly worthy of favorable consideration, and I hope that legislation will shortly be enacted which will establish a retired-pay list for government clerks.

DETAIL SYSTEM.

Three former Paymasters-General have expressed the opinion that the application of the detail system in the Pay Department should not affect grades higher than captain, and their views were reiterated in my annual reports for the last preceding two fiscal years.

There are now six majors from the line of the army serving details in the Pay Department, but the time is fast approaching when detailed officers will necessarily have to assume the important duties of chief paymasters of the Pay Department. When consideration is given to the fact that the detail lasts for but four years, and that this period of time is required for a thorough mastery of the laws, regulations, and methods governing the disbursing and accounting of public funds, it can readily be seen that at the time when the detailed officer has attained the highest point of usefulness his detail has expired by limitation, and he must return to the line.

I can not too strongly recommend that for the present and future welfare of this department the act of February 2, 1901 (sec. 26), be amended so as to provide that all grades in the Pay Department above that of captain be made permanent, and that promotion to major be made from the captains who have served or who may be serving a detail in the Pay Department and who have shown the greatest proficiency in their work. By establishing a permanency in the field officers, the Pay Department can reach and maintain a state of efficiency not possible under the present law.

DISTANCE TABLE.

The act approved June 12, 1906, and prior laws, provide that the payment and settlement of mileage accounts of officers shall be made according to distances and deductions computed over routes established and by mileage tables prepared by the Paymaster-General of the Army under the direction of the Secretary of War.

During the fiscal year 1910, this office, under the direction of the Secretary of War, compiled a new official table of distances, which was published to take effect March 15, 1910.

The last preceding official table of distances was issued in 1906, and the new table was made necessary by the numerous changes in distances occasioned by the establishment of new railroad lines, the abandonment of old routes, changes in stations, etc.

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MILITIA.

Under section 15 of the act of January 21, 1903, as amended, militia organizations of the several States and Territories and the District of Columbia participating in operations at maneuver camps or in joint exercises at lake or seacoast defenses are paid by the Pay Department from funds specifically appropriated by Congress for such purpose.

During the period from July 1, 1909, to June 30, 1910, militia organizations participated in joint seacoast defense exercises at various places in the Departments of the East, Gulf, California, and Columbia, and also in joint field artillery exercises at Sparta, Wis. The pay of these militia organizations disbursed by the Pay Department amounted to $49,340.98, pertaining to the appropriations "Encampment and maneuvers, organized militia, 1909–11," $47,490.45, and "Encampment and maneuvers, organized militia" (no year), $1,850.53. The strength of the militia organizations as paid by the Pay Department was 383 officers and 4,101 enlisted men.

Army paymasters were on duty at the places of joint exercises and encampments for the purpose of making payment to the militia organizations and giving instructions relative to the preparation and extension of pay rolls.

PAYMASTERS' CLERKS.

On June 23, 1910, the United States Senate passed the following bill, entitled "An act to increase the efficiency of the Pay Department, United States Army," viz:

That the President be, and he is hereby, authorized to appoint the army paymasters' clerks now in service to be paymasters' assistants in the army, and hereafter no person shall be appointed an army paymaster's clerk, but any vacancy occurring in the list of paymasters' assistants whose appointment is authorized by this act shall be filled by the appointment, by the President, of a citizen of the United States who shall be between twenty-one and twenty-eight years of age at the date of his appointment and who shall have passed a satisfactory examination, under such regulations as may be established by the President, as to habits, moral character, mental and physical ability, education, and general fitness for the service: *Provided*, That paymasters' assistants appointed under this act shall have the pay and allowances of second lieutenants, except commutation of quarters, fuel, and lights, and shall be on the same footing as commissioned officers of the army as to tenure of office, retirement, pensions, increase of pay, and subjection to the rules and articles of war: *Provided further*, That paymasters' clerks who are now in service and who may be appointed paymasters' assistants under this act may, after becoming sixty-four years of age and upon the recommendation of the Paymaster-General of the Army and a medical board approved by the Secretary of War, be retained in active service until they shall have reached the age of seventy years: *Provided further*, That each paymaster's assistant shall furnish a bond for the faithful performance of his duties in such sum as may be fixed by the Secretary of War.

This bill, which has the favorable indorsement of the Secretary of War, meets the existing needs of the Pay Department, and the Paymaster-General earnestly hopes that it will receive favorable consideration in the House of Representatives during the coming session.

For many years the Pay Department has been constantly confronted with the problem of maintaining an efficient force of paymasters' clerks. Resignation after resignation has occurred, due to the fact that civil life offered a broader and more remunerative field for expert accountants, and it is only by giving this force an

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appropriate military status and conferring upon them pay and the emoluments commensurate with the nature of the duties which they perform that the Pay Department can hope to acquire permanency in this important branch of its service. These essential features are all met by the bill herein mentioned, which, should it become a law, will incorporate the force now known as paymasters' clerks into the military establishment and provide a permanent, trained corps ready at all times to meet any exigency of the service.

I desire in this report to express my appreciation to the paymasters' clerks for the faithful and efficient manner in which they have performed their duties during the past fiscal year.

SOLDIERS' DEPOSITS.

The subjoined table sets forth deposits and repayments for the fiscal years since the system was established, and shows that for the last four years there has been a steady increase in the amount of deposits:

Number and amounts of deposits received from and repaid to soldiers on discharge from July 1, 1872, to June 30, 1910.

Fiscal year ending June 30—	Deposits received.		Deposits repaid.		
	Number.	Amount.	Number.	Principal.	Interest.
1873	.....	$209,850.38	.....	.....	.....
1874	.....	346,609.56	.....	.....	.....
1875	.....	325,255.80	.....	.....	.....
1876	.....	435,912.68	.....	.....	.....
1877	5,524	328,585.05	14,752	$1,041,001.57	$49,713.89
1878	5,524	346,243.94	3,182	145,667.91	88,420.24
1879	6,087	470,770.38	4,926	257,854.48	17,706.93
1880	8,635	477,174.44	8,084	392,568.93	30,680.97
1881	8,942	524,112.72	8,148	501,949.77	38,722.62
1882	6,890	448,561.83	7,570	428,482.44	31,658.73
1883	7,902	407,544.68	6,695	363,578.34	26,123.60
1884	7,114	389,267.55	8,184	404,291.57	31,124.93
1885	7,033	427,617.96	6,930	401,902.22	38,249.44
1886	7,261	469,031.55	7,835	490,506.79	46,583.23
1887	6,889	436,574.98	6,988	389,083.12	34,758.24
1888	7,409	386,944.10	6,346	323,952.97	29,327.01
1889	7,892	383,798.34	7,664	396,468.53	33,647.38
1890	7,634	395,128.82	7,206	411,039.74	41,596.60
1891	6,790	403,473.15	9,106	553,047.45	51,797.70
1892	5,570	334,464.70	8,019	410,873.15	38,894.26
1893	5,870	282,248.04	5,317	268,835.46	26,059.07
1894	5,914	361,830.76	5,786	290,088.98	27,014.32
1895	6,284	318,270.73	5,880	308,372.45	28,766.42
1896	8,778	420,338.87	6,486	359,200.43	38,614.66
1897	17,878	535,392.64	6,976	345,559.55	34,850.53
1898	21,856	613,513.51	17,377	561,518.64	45,815.61
1899	37,842	1,496,762.31	28,508	988,774.63	61,273.95
1900	91,461	3,215,544.66	27,571	1,028,146.34	43,234.89
1901	111,004	3,438,529.11	78,948	2,955,169.39	114,750.37
1902	80,833	2,660,250.66	129,271	3,708,820.19	190,957.77
1903	61,948	1,888,014.37	59,968	2,134,191.91	123,298.48
1904	59,970	1,585,687.60	62,198	1,838,105.64	107,032.95
1905	51,382	1,531,019.80	74,352	2,010,526.80	122,205.52
1906	54,266	1,495,228.04	35,899	1,168,236.62	70,112.93
1907	61,908	1,572,204.04	46,696	1,203,746.47	68,879.02
1908	50,896	1,676,708.68	69,120	1,902,552.80	124,029.82
1909	60,385	1,861,198.53	48,831	1,450,391.08	85,267.64
1910	66,423	1,879,469.29	47,417	1,503,898.33	83,991.90
Total	.....	34,779,134.25	.....	30,938,404.69	2,025,161.62
Amount remaining to credit of depositors	.....	3,840,729.56	.....	.....	.....

NOTE.—Repayment of deposits to soldiers from July 1, 1872, to June 30, 1876, were not recorded by fiscal years. The repayments of 1877 include all deposits repaid prior thereto.

The above table gives a complete history of soldiers' deposits since the passage of the act authorizing them, May 15, 1872.

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PERSONNEL.

The following changes in Pay Department personnel occurred between July 1, 1909, and June 30, 1910:

DETAILS FROM THE LINE.

Maj. Erneste V. Smith, infantry, July 23, 1909, to complete a detail of four years.

Capt. Thomas A. Pearce, infantry, July 6, 1909.

Capt. Fred. C. Doyle, field artillery, July 8, 1909.

Capt. William K. Jones, infantry, August 21, 1909.

Capt. Ellwood W. Evans, cavalry, October 15, 1909.

Capt. James D. Taylor, jr., infantry, October 16, 1909.

Capt. Terence E. Murphy, Coast Artillery Corps, May 29, 1910.

RELIEVED.

Capt. Erneste V. Smith, infantry, July 22, 1909, to accept promotion as major.

Capt. Charles G. Dwyer, infantry, July 6, 1909, on completion of four years' detail.

Capt. George D. Arrowsmith, infantry, August 21, 1909, on completion of four years' detail.

Capt. Claude B. Sweezey, cavalry, October 15, 1909, on completion of four years' detail.

Capt. John K. Miller, infantry, October 16, 1909, at his own request.

Capt. Frederick E. Johnston, Coast Artillery Corps, May 29, 1910, on completion of four years' detail.

Respectfully submitted.

CHAS. H. WHIPPLE,
Paymaster-General, U. S. Army.

The SECRETARY OF WAR.

Mileage disbursements for the fiscal year ended June 30, 1910.

	Appropriations.		
	1908.	1909.	1910.
Inspection of the army:			
By generals commanding departments, accompanied by officers of their staffs, as provided by paragraph 191, Army Regulations		$117.67	$6,123.20
By officers of the General Staff Corps		91.31	3,070.67
By officers of the Inspector-General's Department		820.98	9,503.19
By officers of the Quartermaster's Department		1,114.76	15,087.66
By officers of the Subsistence Department		503.42	5,985.05
By officers of the Medical Department	$2.48	1,592.86	3,910.28
By officers of the Pay Department			16.66
By officers of the Corps of Engineers		23.94	1,059.62
By officers of the Ordnance Department		145.54	7,506.68
By officers of the Signal Corps		368.15	3,164.76
By officers of the Coast Artillery Corps		620.58	3,977.21
By officers of the Field Artillery			350.77
Inspection of—			
Colleges			1,664.27
Horses		364.66	4,735.23
Militia		714.00	27,386.69
Troops		34.72	351.68
Work on fortifications by engineer officers		437.74	1,838.58
Special inspections			277.40
Total for inspection of the army	2.48	6,950.33	96,009.60

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Mileage disbursements for the fiscal year ended June 30, 1910—Continued.

	Appropriations.		
	1908.	1909.	1910.
General recruiting duty		$924.06	$22,417.31
Joining for and returning from recruiting duty		60.57	11,034.45
Returning from conducting recruits			444.66
Total for recruiting		984.63	33,896.42
Changes of station	$232.59	27,172.46	160,454.37
Army service schools, Fort Leavenworth, Kans		1,268.75	5,868.24
Travel of general officers and their aids other than for inspections		10.52	547.55
Travel in Europe and other foreign countries		794.81	4,013.25
Courts-martial and courts of inquiry		336.69	17,406.51
Payment of troops		115.52	17,442.08
Horsemanship or walking tests		25.22	7,526.63
Officers ordered to express offices to obtain money for payment of troops		8.40	159.72
Treasurer and professors, Military Academy		18.20	196.56
Instructions of Secretary of War (confidential duty)		849.17	1,364.16
Target practice, target ranges, and rifle teams		584.69	32,985.97
Conducting prisoners, sick, and insane		207.02	3,563.69
Pursuit of deserters and escaped prisoners			121.90
Line officers on business for Quartermaster's and Subsistence departments		108.66	2,222.95
Retiring boards and officers retired and ordered home		1,379.40	8,476.89
Boards to examine officers for promotion		272.35	23,377.18
Boards for examination of gunners			295.02
Board of Ordnance and Fortification			552.58
Boards of survey			298.42
Board on study of tropical diseases			44.40
Board on General Staff			845.76
Board for considering questions pertaining to the protection of seacoast forts from attack by land			1,532.71
Board on defense of Panama Canal			994.92
Boards on military posts, fortifications, and buildings		181.68	1,027.81
Joint army and navy board on fortifications at Manila			12.96
Board on infantry equipments			2,775.47
Board on cavalry equipments			185.59
Board on advisability of adoption of plants for purifying water			499.86
Board for study of tropical diseases		35.40	99.10
Military aeronautics			1,466.95
Leases and other legal business		24.36	1,372.48
Topographical work	30.10	223.88	1,888.23
Military surveys		73.66	789.04
Consultation with division or department commanders		49.85	57.40
Consultation with The Adjutant-General			436.15
Consultation with Secretary of War			32.14
Consultation with Chief of Staff			325.66
Special investigations			200.73
Fire control and installation		41.04	401.14
War College, attending or delivering lectures			4,493.81
Naval War College, attending or delivering lectures			82.53
Army of Cuban pacification		187.46	102.34
Joint army and militia maneuvers		654.62	13,003.02
Travel for medical or dental treatment		1,112.19	15,178.77
Conducting religious services		29.16	49.68
Coast Artillery School, Fort Monroe, Va		490.42	5,686.60
Attending funerals			71.62
Attending cavalry school, Saumur, France			359.10
Attending American Public Health Association			16.10
Attending American Veterinary Medical Association			347.06
Attending Ecole de l'Intendance			183.16
Attending Hudson-Fulton celebration			10.86
Attending receptions to or accompanying the President of the United States			2,224.91
Attending International Medical Congress at Budapest, Austria			965.23
Attending National Conference on Pellagra			370.58
Attending Medical Association of the City of New York			31.92
Attending London (England) School of Tropical Medicine			276.26
Attending celebration on commencement of work on Panama Canal			133.32
Attending meeting of pathologists and bacteriologists			31.92
Attending American Society of Tropical Medicine			125.16
Attending American Society for Testing Materials		54.32	
Accompanying Prince Tsai Tao, of the Chinese Empire			306.52
Military tournaments	22.12	107.72	2,246.51
Relief of cyclone sufferers			54.74
Acting as judges at competitions held under auspices of the American National Red Cross			102.48
Alaskan Road Commission			633.78
Field operations, Philippine Islands			78.19

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Mileage disbursements for the fiscal year ended June 30, 1910—Continued.

	Appropriations.		
	1908.	1909.	1910.
Alaska-Yukon-Pacific Exposition			$109.79
Giving lecture before the International League for Highway Improvements			142.80
Giving lecture before Yale University Medical School			42.56
Duty not stated		$49.44	395.56
Amount	$287.29	44,402.02	479,625.07
			44,402.02
			287.29
Total Pay Department disbursements during fiscal year 1910			524,314.38
Paid by Auditor for the War Department on Treasury settlements and chargeable to mileage appropriations	90.41	278.28	610.66
			278.28
			90.41
Aggregate, Pay Department and Auditor for the War Department			525,293.73

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Statement of the account of the Pay Department, United States Army, with the appropriations subject to its control during the fiscal year ending June 30, 1910.

Appropriations.	In account with the Treasury.					
	Balance in the Treasury, July 1, 1909.	Amount of appropriations and transfer warrants.	Unexpended balances deposited.	Paymasters' collections deposited.	Repayments in settlement of accounts.	Total.
Pay, etc., of the army, 1910		$44,719,307.54		$754,437.61	$1,037.48	$45,474,782.63
Mileage to officers and contract surgeons, 1910		627,035.66		560.78		627,596.44
Pay of Military Academy, 1910		626,873.33				626,873.33
Army War College, 1910		10,000.00				10,000.00
Encampment and maneuvers, organized militia, 1910-1912		334,064.00				334,064.00
Expenses Brownsville court of inquiry, 1910		22,500.00				22,500.00
Pay of army, deposit fund	$3,280,553.35	1,862,994.06				5,143,547.41
Encampment and maneuvers, organized militia	20.18		$147.49	.80		168.47
Pay, etc., of the army, 1909	2,073,665.91	763.51	271,533.52	119,739.47	56.70	2,465,759.11
Mileage to officers and contract surgeons, 1909	88,639.73	306.06	3,514.29	723.07	129.29	93,312.44
Pay of Military Academy, 1909	63,796.26	569.79	14,681.90			79,047.95
Army War College, 1909	479.00		155.61			634.61
Encampment and maneuvers, organized militia, 1909-1911	18,582.07	53,652.69	25,003.94	757.90		97,996.60
Pay, etc., of the army, 1908	543,505.82	2,448.97	19,768.91	1,366.21	306.45	567,396.36
Mileage to officers and contract surgeons, 1908	3,837.87	164.37	2,455.01	87.76		6,545.01
Pay of Military Academy, 1908	108,566.81	266.69	64.78			108,898.28
Encampment and maneuvers, organized militia, 1908	13,177.37	27.74				13,205.11
Army War College, 1908	28.54					28.54
Pay, etc., of the army, 1907		1,025.62	3,894.38	2,120.63		7,040.63
Mileage to officers and contract surgeons, 1907		1,704.43		291.37		1,995.80
Pay of Military Academy, 1907		2,811.45				2,811.45
Pay, etc., of the army, 1906		806.08	5.00	258.21	.25	1,069.54
Pay, etc., of the army, 1906 and prior years, certified claims		139.67				139.67
Pay, etc., of the army, 1905		702.77		181.03	770.74	1,654.54
Pay, etc., of the army, 1904				122.02		122.02
Pay, etc., of the army, 1903				146.40		146.40
Pay, etc., of the army, 1902				157.38		157.38
Pay, etc., of the army, 1901				201.22		201.22
Pay, etc., of the army, 1899				68.55	166.65	235.20
Pay, etc., of the army, 1898				51.49		51.49
Pay, etc., of the army, 1897				6.76		6.76
Pay, etc., of the army, 1896				20.10		20.10
Pay, etc., of the army, 1895				24.00		24.00
Pay, etc., of the army, 1894				15.90		15.90
Pay, etc., of the army, 1891				8.00		8.00
Pay, etc., of the army, 1885				7.01		7.01
Pay, etc., of the army, 1882				2.35		2.35

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Statement of the account of the Pay Department, United States Army, with the appropriations subject to its control during the fiscal year ending June 30, 1910—Continued.

Appropriations.	In account with the Treasury.					
	Balance in the Treasury, July 1, 1909.	Amount of appropriations and transfer warrants.	Unexpended balances deposited.	Paymasters' collections deposited.	Repayments in settlement of accounts.	Total.
Pay, etc., of the army, 1871 and prior years					$742.61	$742.61
Pay, etc., of the army, 1870-71		$9.59				9.59
Pay, etc., of the army, 1869		146.81				146.81
Pay, etc., of the army, 1865				$60.00	9.70	69.70
Pay, mileage, and general expenses of the army, 1875					21.33	21.33
Relief of William G. Hardy, color sergeant, Fourth U. S. Cavalry		597.38				597.38
Total	$6,194,852.91	48,268,918.21	$341,224.83	881,416.02	3,259.20	55,689,671.17

Appropriations.	In account with the Treasury.					Balance in the hands of paymasters, June 30, 1910.	Total balances, June 30, 1910.
	Amount drawn by requisition and warrant.		Amount covered into surplus fund.	Total.	Balance in the Treasury, June 30, 1910.		
	On pay department request.	On Treasury settlements.					
Pay, etc., of the army, 1910	$44,153,980.00	$266,401.14		$44,420,381.14	$1,054,401.49	$3,654,215.41	$4,708,616.90
Mileage to officers and contract surgeons, 1910	526,400.00	865.58		527,265.58	100,330.86	44,881.33	145,212.19
Pay of Military Academy, 1910	554,040.00	156.08		554,196.08	72,677.25	29,423.04	102,100.29
Army War College, 1910	7,500.00	31.09		7,531.09	2,468.91	1,920.19	4,389.10
Encampment and maneuvers, organized militia, 1910-1912	128,901.00			128,901.00	205,163.00	128,901.00	334,064.00
Expenses Brownsville court of inquiry, 1910	22,500.00			22,500.00		57.96	57.96
Pay of army, deposit fund	1,521,180.00	24,461.52		1,545,641.52	3,597,905.89	216,722.46	3,814,628.35
Encampment and maneuvers, organized militia		27.74		27.74	140.73		140.73
Pay, etc., of the army, 1909	422,000.00	558,889.39		980,889.39	1,484,869.72	41,196.61	1,526,066.33
Mileage to officers and contract surgeons, 1909	8,000.00	738.47		8,738.47	84,573.97	2,209.19	86,783.16
Pay of Military Academy, 1909	20,000.00	174.23		20,174.23	58,873.72	480.00	59,353.72
Army War College, 1909	400.00			400.00	234.61		234.61
Encampment and maneuvers, organized militia, 1909-1911	84,620.30			84,620.30	13,376.30	46,803.17	60,179.47
Pay, etc., of the army, 1908	15,000.00	60,878.37	$491,517.99	567,396.36			
Mileage to officers and contract surgeons, 1908		699.18	5,845.83	6,545.01			

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Pay of Military Academy, 1908		161.35	108,736.93	108,898.28			
Encampment and maneuvers, organized militia, 1908		14.44	13,190.67	13,205.11			
Army War College, 1908			28.54	28.54			
Pay, etc., of the army, 1907			7,040.63	7,040.63			
Mileage to officers and contract surgeons, 1907		1,704.43	291.37	1,995.80			
Pay of Military Academy, 1907		1,731.93	1,079.52	2,811.45			
Pay, etc., of the army, 1906		1,056.54	13.00	1,069.54			
Pay, etc., of the army, 1906 and prior years, certified claims			139.67	139.67			
Pay, etc., of the army, 1905			1,654.54	1,654.54			
Pay, etc., of the army, 1904			122.02	122.02			
Pay, etc., of the army, 1903			146.40	146.40			
Pay, etc., of the army, 1902			157.38	157.38			
Pay, etc., of the army, 1901			201.22	201.22			
Pay, etc., of the army, 1899			235.20	235.20			
Pay, etc., of the army, 1898			51.49	51.49			
Pay, etc., of the army, 1897			6.76	6.76			
Pay, etc., of the army, 1896			20.10	20.10			
Pay, etc., of the army, 1895			24.00	24.00			
Pay, etc., of the army, 1894			15.90	15.90			
Pay, etc., of the army, 1891			8.00	8.00			
Pay, etc., of the army, 1885			7.01	7.01			
Pay, etc., of the army, 1882			2.35	2.35			
Pay, etc., of the army, 1875			18.00	18.00			
Pay, etc., of the army, 1871 and prior years			742.61	742.61			
Pay, etc., of the army, 1870–71			9.59	9.59			
Pay, etc., of the army, 1869			146.81	146.81			
Pay, etc., of the army, 1865			69.70	69.70			
Pay, mileage, and general expenses of the army, 1875			21.33	21.33			
Relief of William G. Hardy, color sergeant, Fourth U. S. Cavalry		597.38		597.38			
Total	47,464,521.30	918,588.86	631,544.56	49,014,654.72	6,675,016.45	4,166,810.36	10,841,826.81

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Statement showing the balance in the hands of each disbursing officer of the Pay Department, States Treasury, or turned over by other agents during the fiscal year ending June 30, or replacement in the Treasury, and the balance remaining in the hands of paymasters

Rank and name.	Balance in hands of each paymaster on June 30, 1909.	Remitted from the Treasury in the year ending June 30, 1910.	Received from other paymasters.	Received from paymaster's collections.	Received from soldiers deposits.	Total received and to be accounted for.
Colonels and assistant paymasters-general.						
Comegys, W. H	$63,876.44	$6,612,000.00	$51,505.84	$1,700.00	$455.00	$6,729,537.28
Smith, G. R	79,994.00	5,966,478.00	458,514.38	2,059.45	432.00	6,507,477.83
Rogers, H. L	.....	4,752,000.00	270,272.67	448.18	.....	5,022,720.85
Lieutenant-colonels and deputy paymasters-general.						
Vinson, W	57,162.00	4,366,785.00	192,009.55	11,478.82	5,036.26	4,632,471.63
Wallace, H. S	125,856.23	1,583,000.00	120,211.84	12,199.21	17,696.61	1,858,963.89
Payson, F. L	.....	1,643,900.00	233,782.31	22,103.75	27,610.42	1,927,396.48
Downey, G. F.[a]	.....	.....	.....	.....	.....	.....
Majors and paymasters.						
Goodman, T. C	46,778.28	.....	717,248.06	9,391.54	49,090.38	822,508.26
Houston, J. B	112,686.79	1,164,500.00	180,487.64	30,855.08	31,437.70	1,519,967.21
Ray, B. B	55,709.02	362,357.00	237,157.06	9,224.65	28,438.63	692,886.36
Lord, H. M	.....	1,371,000.00	200,771.62	12,840.21	14,213.50	1,598,825.33
Rochester, W. B	107,442.55	3,940,561.00	864,743.93	22,664.22	24,122.40	4,959,534.10
Smith, R. S	63,579.55	.....	1,144,045.60	27,405.75	46,521.48	1,281,552.38
Johnson, F. O	43,791.82	784.30	1,516,806.00	41,904.75	34,322.94	1,637,609.81
Holloway, G. T	80,304.30	.....	993,406.65	31,216.56	27,345.92	1,132,273.43
Gambrill, W. G	.....	694,900.00	124,567.66	17,908.20	28,194.52	865,570.38
Keleher, T. D	43,223.88	2,677,000.00	190,834.87	43,344.46	36,605.06	2,991,008.27
Pickett, G. E	34,329.06	.....	920,843.59	19,620.40	22,900.51	997,693.56
Blauvelt, W. F	111,866.97	1,508,000.00	229,611.51	31,973.05	22,187.00	1,903,638.53
Canby, J	53,471.95	1,460,012.00	243,488.95	20,733.53	30,744.88	1,808,451.31
Lynch, J. R	.....	.....	620,000.00	19,564.12	28,605.06	668,169.18
Barroll, M. K	67,785.32	628,625.00	130,045.35	22,531.19	23,178.28	872,165.14
Stanton, C. E	106,486.37	.....	1,535,975.63	17,506.61	112,775.11	1,772,743.72
Hains, J. P	45,628.57	145,000.00	404,853.95	16,053.13	40,292.30	651,827.95
Stevens, P. C	84,407.35	51,160.00	1,599,920.68	40,752.36	45,692.47	1,821,932.86
Smith, E. V	4,932.47	175,000.00	511,230.25	13,199.11	18,816.72	723,178.55
Skerrett, D	16,176.59	1,115,000.00	1,157,078.66	9,105.86	45,579.10	2,342,940.21
Captains and paymasters.						
Jones, W. K	.....	193,000.00	507,827.01	20,427.26	17,332.53	738,586.80
Wilder, W. T	31,505.64	.....	804,891.68	38,374.10	24,212.74	898,984.16
Lyon, H. G	.....	.....	1,020,950.97	12,090.35	60,522.69	1,093,564.01
Jarvis, M. S	75,053.08	.....	1,289,344.13	49,595.49	41,240.97	1,455,233.67
Evans, E. W	.....	.....	510,866.69	5,507.59	40,289.84	556,664.12
Suplee, E. M	42,064.89	.....	932,444.58	11,470.57	25,736.50	1,011,716.54
Hornbrook, J. J	46,815.95	.....	826,101.35	15,961.74	57,193.99	946,073.03
Clark, W. F	42,919.55	940,000.00	179,345.71	39,643.33	34,532.71	1,236,441.30
Anderson, E. D	137,179.31	55,000.00	1,125,666.06	14,285.31	59,019.37	1,391,090.05
Carey, E. C	56,360.99	1,315,000.00	197,087.86	24,778.21	37,088.04	1,630,315.10
Castle, C. W	30,052.61	100,000.00	694,357.78	21,850.12	31,966.24	878,226.75
Williams, R. C	110,537.31	510,700.00	456,925.31	32,307.52	41,254.49	1,151,724.63
Walker, K. W	79,557.75	485,000.00	464,151.56	29,482.63	25,707.03	1,083,898.97
Pearce, T. A	.....	491,000.00	707,517.97	49,495.48	59,843.63	1,407,857.08
Hammond, H	47,111.64	.....	940,841.65	18,199.09	101,397.86	1,107,550.24
Orton, E. P	82,633.91	1,157,000.00	126,660.32	24,084,31	57,601.00	1,447,979.54
Taylor, J. D., jr	.....	115,000.00	467,717.81	11,844.87	13,550.30	607,412.98
Cooke, E. H	53,218.33	.....	753,000.00	25,211.25	34,470.61	865,900.19
Greenough, E. A	71,212.64	.....	425,552.69	8,756.00	20,417.50	525,938.89
Morton, C. E	32,909.27	488,000.00	45,478.63	12,133.07	10,742.17	589,263.14
Murphy, T. E	.....	.....	98,721.97	1,283.08	262.75	100,267.80
Frith, R. E	45,040.97	418,759.00	974,207.44	42,885.74	30,797.58	1,511,690.73
Doyle, F. C	.....	97,000.00	527,560.28	29,424.83	35,173.57	689,158.68
Howard, C. E. N	31,789.67	.....	1,122,610.92	14,707.14	83,723.50	1,252,831.23
Burt, W. H	63,592.51	260,000.00	686,029.40	28,404.91	31,367.89	1,069,394.71
Johnston, F. E	71,160.86	.....	1,096,392.27	41,607.03	46,095.95	1,255,256.11
Sweezey, C. B	40,970.54	.....	147,610.61	3,652.78	11,713.42	203,947.35
Arrowsmith, G. D	44,456.51	.....	12,500.00	1,285.46	1,815.00	60,056.97
Miller, J. K	74,158.22	332,000.00	46,718.12	17,021.67	14,944.20	484,842.21

[a] Not disbursing.

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United States Army, on the 1st of July, 1909; the amount remitted to each from the United 1910; the amounts accounted for by accounts and vouchers of expenditures, or by transfer to be accounted for in the next fiscal year.

Surplus funds deposited in the Treasury.	Paymaster's collections deposited in the Treasury.	Soldiers' deposits deposited.	Expenditures.	Transferred to other paymasters.	Balance in hands of each paymaster on June 30, 1910.	Total accounted for.
$35,903.47	$1,700.00	$455.00	$2,309,471.15	$4,382,007.66	.....	$6,729,537.28
6,919.51	2,059.45	432.00	2,396,622.44	3,786,713.96	$314,730.47	6,507,477.83
9,159.46	448.18	.....	285,255.49	4,320,234.12	407,623.60	5,022,720.85
26,665.38	11,478.82	5,036.26	1,453,398.47	2,810,393.43	325,499.27	4,632,471.63
215.94	12,199.21	17,696.61	592,687.00	1,220,643.38	15,521.75	1,858,963.89
2,045.69	22,103.75	27,610.42	981,282.97	766,842.72	127,510.93	1,927,396.48
.....	.....	.....	.....	.....	.....	.....
.....	9,391.54	49,090.38	566,866.82	207,159.52	.....	822,508.26
12,415.19	30,855.08	31,437.70	959,367.79	444,151.56	41,739.89	1,519,967.21
145.37	9,224.65	28,438.63	406,582.54	127,673.58	120,821.59	692,886.36
501.74	12,840.21	14,213.50	779,983.21	735,695.09	55,591.58	1,598,825.33
115.89	22,664.22	24,122.40	1,384,345.42	3,394,573.46	133,712.71	4,959,534.10
.....	27,405.75	46,521.48	876,664.07	226,226.38	104,734.70	1,281,552.38
.....	41,904.75	34,322.94	1,462,800.69	2,184.60	96,396.83	1,637,609.81
99.86	31,216.56	27,345.92	855,562.37	90,393.04	127,655.68	1,132,273.43
406.80	17,908.20	28,194.52	509,443.61	292,818.12	16,799.13	865,570.38
866.37	43,344.46	36,605.06	1,861,441.27	1,048,751.11	.....	2,991,008.27
.....	19,620.40	22,900.51	639,475.70	315,696.95	.....	997,693.56
45,000.00	31,973.05	22,187.00	913,853.09	822,750.48	67,874.91	1,903,638.53
6,287.82	20,733.53	30,744.88	916,995.75	742,256.92	91,432.41	1,808,451.31
.....	19,564.12	28,605.06	541,265.85	45.54	78,688.61	668,169.18
20,000.00	22,531.19	23,178.28	676,295.56	19,782.57	110,377.54	872,165.14
.....	17,506.61	112,775.11	901,156.42	734,238.25	7,067.33	1,772,743.72
.....	16,053.13	40,292.30	543,347.25	4,162.26	47,973.01	651,827.95
.....	40,752.36	45,692.47	1,594,483.41	16,308.75	124,695.87	1,821,932.86
.....	13,199.11	18,816.72	501,495.59	119,189.30	70,477.83	723,178.55
.....	9,105.86	45,579.10	588.117.31	1,700,137.94	....	2,342,940.21
.....	20,427.26	17,332.53	543,037.99	155,634.43	2,104.59	738,586.80
.....	38,374.10	24,212.74	745,855.83	34,163.91	56,377.58	898,984.16
.....	12,090 35	60,522.69	693,558.88	257,816.74	69,575.35	1,093,564.01
.....	49,595.49	41,240.97	1,285,398.01	10,000.00	68,999.20	1,455,233.67
.....	5,507.59	40,289.84	430,267.92	20,000.00	60,598.77	556,664.12
.....	11,470.57	25,736.50	475,515.93	436,857.65	62,135.89	1,011,716.54
.....	15,961.74	57,193.99	630,256.95	169,978.28	72,682.07	946,073.03
.....	39,643.33	34,532.71	907,122.18	146,229.84	108,913.24	1,236,441.30
.....	14,285.31	59,019.37	699,399.41	568,484.86	49,901.10	1,391,090.05
.....	24,778.21	37,088.04	994,587.47	522,029.40	51,831.98	1,630,315.10
.....	21,850.12	31,966.24	558,523.11	239,610.07	26,277.21	878,226.75
10,000.00	32,307.52	41,254.49	856,255.49	189,947.99	21,959.14	1,151,724.63
70,000.00	29,482.63	25,707.03	746,060.64	147,479.58	65,169.09	1,083,898.97
.....	49,495.48	59,843.63	1,213,302.27	68,912.45	16,303.25	1,407,857.08
.....	18,199.09	101,397.86	862,525.35	17,233.86	108,194.08	1,107,550.24
15,000.00	24,084.31	57,601.00	1,029,422.21	235,769.47	86,102.55	1,447,979.54
.....	11,144.87	13,550.30	313,258.13	196,200.83	73,258.85	607,412.98
.....	25,211.25	34,470.61	736,839.76	575.37	68,803.20	865,900.19
.....	8,756.06	20,417.50	309,397.67	186,949.29	418.37	525,938.89
.....	12,133.07	10,742.17	542,908.75	3,146.79	20,332.36	589,263.14
.....	1,283.08	262.75	39,016.98	.....	59,704.99	100,267.80
1,500.00	42,885.74	30,797.58	1,186,504.40	146,784.05	103,218.96	1,511,690.73
.....	29,424.83	35,173.57	608,560.44	1,000.00	14,999.84	689,158.68
.....	14,707.14	83,723.50	873,069.91	207,320.62	73,990.06	1,252,831.23
.....	28,404.91	31,367.89	813,792.68	116,686.54	79,142.69	1,069,394.71
.....	41,607.03	46,095.95	1,137,096.82	30,456.31	.....	1,255,256.11
.....	3,652.78	11,713.42	175,831.91	12,749.24	.....	203,947.35
.....	1,285.46	1,815.00	55,081.38	1,875.13	.....	60,056.97
.....	17,021.67	14,944.20	292,560.08	160,316.26	.....	484,842.21

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Statement showing the balance in the hands of each disbursing officer of the Pay Department, States Treasury, or turned over by other agents during the fiscal year ending June 30, or replacement in the Treasury, and the balance remaining in the hands of paymasters

Rank and name.	Balance in hands of each paymaster on June 30, 1909.	Remitted from the Treasury in the year ending June 30, 1910.	Received from other paymasters.	Received from paymaster's collections.	Received from soldiers' deposits.	Total received and to be accounted for.
Special disbursing agents.						
Irons, J. A.	$383.74		$13,168.24			$13,551.98
Cooke, G. F.	53,004.01		3,000.00	$756.74	$1,680.14	58,440.89
Hawthorne, H. L.			8,000.00			8,000.00
Kreps, J. F.	14,579.09		82,000.00	1,744.38	5,523.00	103,846.47
Landis, J. F. R.			6,055.00			6,055.00
Mott, T. B.			5,300.00			5,300.00
Slocum, S. L'H.			5,200.00			5,200.00
Haskell, E. E.			150,738.81	3,289.91	28,505.08	182,533.80
Reeves, J. H.			4,800.00			4,800.00
Shartle, S. G.			3,800.00			3,800.00
Stewart, G. E.	35,518.03		71,121.74	2,686.68	24,960.99	134,287.44
Beals, F. L.			2,200.00			2,200.00
Colvin, W. M.			768.00			768.00
Cordier, C.			2,943.62			2,943.62
Davis, B. O.			1,700.00			1,700.00
Henkes, D. A.	43,365.22		60,087.11	2,072.41	6,491.76	112,016.50
Short, W. E.			75,000.00			75,000.00
Smith, P. L.			20,000.00			20,000.00
Ware, J. F.			55,000.00			55,000.00
West, S. B.			76,654.79			76,654.79
Total	2,862,641.75	$47,275,521.30	32,685,972.33	1,163,405.30	1,879,469.29	85,867,009.97

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United States Army, on the 1st of July, 1909; the amount remitted to each from the United 1910; the amounts accounted for by accounts and vouchers of expenditures, or by transfer to be accounted for in the next fiscal year—Continued.

Surplus funds deposited in the Treasury.	Paymaster's collections deposited in the Treasury.	Soldiers' deposits deposited.	Expenditures.	Transferred to other paymasters.	Balance in hands of each paymaster on June 30, 1910.	Total accounted for.
			$12,899.50	$652.48		$13,551.98
	$756.74	$1,680.00	11,494.80	34,567.81	$9,941.40	58,440.89
			5,695.51		2,304.49	3,000.00
	1,744.38	5,523.00	75,622.54	20,956.55		103,846.47
			6,048.71		6.29	6,055.00
			5,168.23		131.77	5,300.00
$540.12			4,659.88			5,200.00
26,253.32	3,289.91	28,505.08	112,980.92	420.38	11,084.19	182,533.80
190.16			4,609.84			4,800.00
40.37			3,759.63			3,800.00
19,000.00	2,686.68	24,960.99	78,113.05	3,349.94	6,176.78	134,287.44
37.41			2,162.59			2,200.00
733.00			760.67			768.00
			2,943.62			2,943.62
			761.25		938.75	1,700.00
29,087.11	2,072.41	6,491.76	61,977.85	10,785.52	1,601.85	112,016.50
					75,000.00	75,000.00
					20,000.00	20,000.00
					55,000.00	55,000.00
					76,654.79	76,654.79
338,404.31	1,163,405.30	1,879,469.29	45,632,948.38	32,685,972.33	4,166,810.36	85,867,009.97

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REPORT OF THE CHIEF OF ORDNANCE.

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REPORT OF THE CHIEF OF ORDNANCE.

War Department,
Office of the Chief of Ordnance,
Washington, July 30, 1910.

Sir: I have the honor to submit the following report on the principal operations of the Ordnance Department during the past year, together with certain remarks as to its interests and necessities.

PERSONNEL.

Of the statutory number of officers authorized by the organization of the Ordnance Department, which is 85, there were in the corps at the date of my last annual report 73; there are now 78. The department received 12 new officers during the current year, and 2 officers were returned to it after the one year's tour with troops required by law. Of the 14 officers received 2 came from the cavalry, 2 from the field artillery, 8 from the coast artillery, and 2 from the infantry. This would seem to bear out the view expressed in my last annual report that there will be no difficulty in recruiting the corps to its authorized strength when normal conditions obtain in the grades of first and second lieutenant of the line of the army. During the year 2 officers of the department were retired for physical disability, 6 were returned to the line in accordance with the provisions of existing law, and 1 resigned his commission as an officer of the army upon the expiration of his tour of duty with this department.

Since the beginning of the year vacancies in the grade of major, to which detailed officers have been eligible, have, for the first time, occurred, and 2 such officers are now serving in that grade. For these officers the compulsory interval between successive four-year details, which is required in the lower grades, no longer exists, although the detail comes to an end in the usual way, and the officer must be redetailed in order to continue in the department.

There are now in the department 45 detailed officers, of whom 39 are serving in the grade next above the one which they held in their previous branch of the service. The method of detail in the Ordnance Department affords opportunity for the exercise of selection in promotion and elimination. The officers are therefore serving under the competitive conditions of a merit system, which is thought to be essential to the efficiency of any organization. It is believed that the detail system as thus applied will continue to be successful in this department, which has no reason to be other than gratified with the character of officers which have been procured for it, and with their interest in and devotion to their duty. An objection to the detail system has been suggested to the effect that upon outbreak of war all good officers would be anxious to leave the staff departments and return to the line organizations with which they

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had been identified. This objection is necessarily speculative, as it is difficult to measure in advance the estimate which officers will place upon the relative advantages which may be offered them by service in the line and in the staff under war conditions. Of course it is to be supposed that these conditions will be such as to offer some advantage in the way of advancement to the officers serving in the staff departments akin to that which is offered for service in the line, and we are not without some light upon the subject shed by experience, since at the outbreak of the Spanish war many excellent line officers accepted appointment in the Ordnance Department and rendered good service therein.

CLERICAL FORCE.

By the act making appropriations for the legislative, executive, and judicial expenses of the Government, approved June 17, 1910, the clerical force of the Office of the Chief of Ordnance was increased from 60 to 66. This increase should enable the work of the office to be kept up to date at all times, without requiring an increase in the hours of daily labor now prescribed.

The unsatisfactory conditions mentioned in my last annual report with reference to the rates of pay of clerks, which, for the four higher classes, were fixed by the act of March 22, 1854, still pertain, and are accentuated by the constantly increasing cost of living and a corresponding decrease in the purchasing power of the salaries paid.

The same remark applies to the salaries of the clerks of the field establishments of the Ordnance Department, which are based upon those which the law provides for clerks in this office.

FISCAL AFFAIRS.

During the fiscal year the work of revising and improving price lists of stores issued by this department was completed, so that the department now has better price lists of all materials supplied by it than ever before, though they have previously been approximately correct.

The contract forms used by this department providing for the purchase of its materials and the performance of work of various kinds have also been revised during the current year, using the experience which has brought out disputed and obscure points, with a view to providing for each class of purchases a simple, clear, and concise contract form—one as to the meaning or construction of which there could be the least possible misunderstanding or doubt. It is believed the department now has a set of forms for contracts which will compare favorably with those in use by any bureau or department of the Government.

The statement giving the receipts and expenditures of the Ordnance Department under general headings for the fiscal year of 1910 is herewith submitted in tabular form, so as to show the data under the various appropriations made for the service of this department, including those for experiments conducted under the direction of the Board of Ordnance and Fortification and for the purchase of submarine mines, the control of which last rests with the Chief of Coast Artillery.

The tables constituting the statement show that on July 1, 1909, there was in the Treasury and in the possession of disbursing officers the sum of $14,390,940.77.

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Statement showing receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1910.

RECEIPTS.

Appropriations.	Amount in the Treasury to credit of the appropriation on June 30, 1909.	Amount in the Treasury not reported to credit of the appropriation on June 30, 1909.	Amount in government depositories to credit of disbursing officers on June 30, 1909.	Amount loaned to other appropriations and due to disbursing officers on June 30, 1909.	Amount of appropriations for service of the fiscal year ended June 30, 1910.	Amount refunded to ordnance appropriations in settlement of accounts during the fiscal year ended June 30, 1910.	Amount received from sales, loss, rents, damage, etc., during the fiscal year ended June 30, 1910.	Total.
Ordnance service, 1910					$325,000.00	$6,839.28	$320.60	$332,159.88
Ordnance stores, ammunition, 1909 and 1910	$48,778.22		$134,247.57	$8,672.40				191,698.19
Ordnance stores, ammunition, 1910 and 1911					700,000.00			700,000.00
Ordnance stores and supplies, 1909 and 1910	289,692.41		38,518.42					328,210.83
Ordnance stores and supplies, 1910 and 1911					1,000,000.00			1,000,000.00
Small-arms target practice, 1909 and 1910	193,314.24	$108.52	144,265.26					337,688.02
Small-arms target practice, 1910 and 1911					1,330,000.00			1,330,000.00
Replacing ordnance and ordnance stores, 1909 and 1910	1,205,956.95	14,989.03	74,992.86			450,064.74	24.27	1,746,027.85
Replacing ordnance and ordnance stores, 1910 and 1911						1,349,409.54	214,393.13	1,563,802.67
Manufacture of arms, 1909 and 1910	804,866.64		178,508.65			210.39		983,585.68
Manufacture of arms, 1910 and 1911					1,700,000.00	1,461.58	14.60	1,701,476.18
Fire control in field batteries, 1909	150,634.68		6,213.01					156,847.69
Fire control in field batteries, 1910 and 1911					62,000.00			62,000.00
Equipment of coast artillery, organized militia, 1910					25,000.00			25,000.00
Automatic rifles, 1910 and 1911					200,000.00			200,000.00
Repairs of arsenals, 1910					290,000.00	200.00	24.24	290,224.24
Board of Ordnance and Fortification	161,301.96		1,617.60		25,000.00	a 16,998.42		204,917.98
Field artillery for organized militia	467,185.69	29.21	118,222.97					585,437.87
Armament of fortifications	4,644,555.31	78.07	468,076.45		1,970,000.00	19,320.71	280.50	7,102,311.04
Submarine mines	547,354.14		72,654.59		58,000.00	129.92	61.40	678,200.05
Fire control in insular possessions	26,632.71		1.80					26,634.51
Submarine mines in insular possessions	173,815.64		11,737.76			2,356.00		187,909.40
Fortifications in insular possessions	1,852,232.88	68.75	121,571.14		1,474,800.00		11.60	3,448,684.37
Ordnance material (proceeds of sales)	75,143.18		807.84		75,000.00		91,118.51	242,069.53
Fire control at fortifications	99,048.38		6,764.42		b 33,000.00			138,812.80
National trophy and medals for rifle contests, 1910					9,000.00			9,000.00
Augusta Arsenal, Augusta, Ga			6,981.10					6,981.10
Benicia Arsenal, Benicia, Cal	12,115.87		4,089.76					16,205.63
Frankford Arsenal, Philadelphia, Pa			3,876.20		30,000.00			33,876.20
Proving Ground, Sandy Hook, N. J	89,864.79		21,034.49		110,000.00	12,129.78	107.20	233,136.26

a Unexpended balances deposited by other bureaus.

b Allotted by Secretary of War.

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Statement showing receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1910—Con.

RECEIPTS—Continued.

Appropriations.	Amount in the Treasury to credit of the appropriation on June 30, 1909.	Amount in the Treasury not reported to credit of the appropriation on June 30, 1909.	Amount in government depositories to credit of disbursing officers on June 30, 1909.	Amount loaned to other appropriations and due to disbursing officers on June 30, 1909.	Amount of appropriations for service of the fiscal year ended June 30, 1910.	Amount refunded to ordnance appropriations in settlement of accounts during the fiscal year ended June 30, 1910.	Amount received from sales, loss, rents, damage, etc., during the fiscal year ended June 30, 1910.	Total.
Picatinny Arsenal, Dover, N. J	$3,000.00		$1,000.00		$190,000.00			$194,000.00
Powder Depot, Dover, N. J			4,596.68					4,596.68
Army Powder Factory			2,962.00					2,962.00
Ordnance Depot, Manila, P. I	10,246.10		2,968.98		12,300.00			25,515.08
Springfield Arsenal, Springfield, Mass	4,027.73		647.48		45,100.00			49,775.21
Rock Island Arsenal, Rock Island, Ill			21,607.16		147,600.00			169,207.16
Rock Island bridge, Rock Island, Ill., 1910					18,000.00			18,000.00
Rock Island power plant, Rock Island, Ill., 1910					12,500.00	$263.06		12,763.06
Testing machine, 1910					15,000.00	2,525.30		17,525.30
Watertown Arsenal, Watertown, Mass	12,866.22		618.13		62,000.00			75,484.35
Replacing and repairing ordnance property at Gulf forts	30,733.15		.74					30,733.89
Watervliet Arsenal, West Troy, N. Y	2,109.03		4,718.75		2,000.00			8,827.78
Encampment and maneuvers:								
Organized militia	23,039.81				a 973.36			24,013.17
Organized militia, 1909–1911					a 67,553.87			67,553.87
Organized militia, 1910–1912					a 103,973.27			103,973.27
Powder and projectiles (proceeds of sales)	30,471.91		2,694.57					33,166.48
Ordnance service, 1908	5,692.14	$8.20	110.64					5,810.98
Replacing ordnance and ordnance stores, 1907 and 1908	8,591.13	165.58	1,531.45			1.18		10,289.34
Manufacture of arms, 1907 and 1908	2,685.61	3.03	1,453.39					4,142.03
Fire control in field batteries, 1908	421.05		247.31					668.36
Repairs of arsenals, 1908	4,172.85		320.64					4,493.49
National trophy and medals for rifle contests, 1908	907.45							907.45
Rock Island bridge, Rock Island, Ill., 1908	1.87							1.87
Testing machine, 1908	1,026.41							1,026.41
Converting muzzle-loading guns for saluting purposes	2.98							2.98
Reconstructing Rock Island bridge and viaduct			120.49					120.49
Ordnance stores and supplies, 1907			6,760.21					6,760.21
Rock Island power plant, Rock Island, Ill., 1908	1,298.81							1,298.81
Field artillery for organized militia, 1907			249.70					249.70

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Ordnance service, 1909	9,816.62	669.82	31,956.99			1,274.90	$98.25	43,816.58
Ordnance stores, ammunition, 1908 and 1909	720.36	4.71	1,665.23					2,390.30
Ordnance stores and supplies, 1908 and 1909	17,644.30		101,359.21					119,003.51
Small-arms target practice, 1908 and 1909	7,781.08	1.00	10,672.65					18,454.73
Replacing ordnance and ordnance stores, 1908 and 1909	1,121,284.04	5.40	398,996.55			7,072.25	1.00	1,527,359.24
Manufacture of arms, 1908 and 1909	1,148.54	654.50	32,461.79					34,264.83
Repairs of arsenals, 1909	41,268.97	104.03	70,984.63			100.00		112,457.63
Equipment of coast artillery, organized militia, 1909	9,610.00		2,150.40					11,760.40
New arms and equipments for organized militia			8.19					8.19
Rock Island bridge, Rock Island, Ill., 1909			1,678.17					1,678.17
Rock Island power plant, Rock Island, Ill., 1909			5,515.03			3.40		5,518.43
Testing machine, 1909			3,843.85			31.00		3,874.85
Replacing ordnance and ordnance stores, 1906 and 1907						16.55		16.55
Manufacture of arms, certified claims					55.50			55.50
Miscellaneous receipts							15,057.34	15,057.34
National defense	6,109.70							6,109.70
Encampment and maneuvers, organized militia, 1908	46,700.36							46,700.36
National trophy and medals for rifle contests, 1909	28.36		67.75					96.11
Total	12,245,900.27	16,889.85	2,128,150.65	$8,672.40	10,093,856.00	1,870,408.00	321,512.64	26,685,389.81

* Allotted by Secretary of War.

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Statement showing receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1910—Con.

EXPENDITURES.

Appropriations.	Amount of expenditures during the fiscal year ended June 30, 1910.	Amount paid and transferred on Treasury settlement during the fiscal year ended June 30, 1910.	Amount deposited in the Treasury as proceeds of sales during the fiscal year ended June 30, 1910.	Amount covered into the Treasury on account of miscellaneous receipts during the fiscal year ended June 30, 1910.	Amount covered into the surplus fund of the Treasury on June 30, 1910.	Amount in government depositories to credit of disbursing officers on June 30, 1910.	Amount in the Treasury not reported to credit of the appropriation on June 30, 1910.	Amount in the Treasury to credit of the appropriation on June 30, 1910.	Total.
Ordnance service, 1910	$270,194.98	$3,407.27				$46,059.99	$189.90	$12,307.74	$332,159.88
Ordnance stores, ammunition, 1909 and 1910	182,853.10	134.68				4,785.42		3,924.99	191,698.19
Ordnance stores, ammunition, 1910 and 1911	488,811.21					48,919.00	2,104.40	160,165.39	700,000.00
Ordnance stores and supplies, 1909 and 1910	273,477.30	4,084.50				42,501.89		8,147.14	328,210.83
Ordnance stores and supplies, 1910 and 1911	590,461.05	831.23				102,463.80		306,243.92	1,000,000.00
Small-arms target practice, 1909 and 1910	296,551.43	308.29				8,459.83	106.56	32,261.91	337,688.02
Small-arms target practice, 1910 and 1911	784,707.24	108.46				91,717.96	400.00	453,066.34	1,330,000.00
Replacing ordnance and ordnance stores, 1909 and 1910	1,186,176.58	2,468.67				172,653.87		384,728.73	1,746,027.85
Replacing ordnance and ordnance stores, 1910 and 1911	66,997.29	1,316.29				97,701.74	134,236.25	1,263,551.10	1,563,802.67
Manufacture of arms, 1909 and 1910	964,775.82	77.47				15,802.62		2,929.77	983,585.68
Manufacture of arms, 1910 and 1911	724,674.97	912.79				98,713.98	281.42	876,893.02	1,701,476.18
Fire control in field batteries, 1909	39,465.78	140.09				4,340.65		112,901.17	156,847.69
Fire control in field batteries, 1910 and 1911								62,000.00	62,000.00
Equipment of coast artillery, organized militia, 1910	17,119.54	6,039.13				1,831.33		10.00	25,000.00
Automatic rifles, 1910 and 1911	2,180.84	31.09				3,519.16		194,268.91	200,000.00
Repairs of arsenals, 1910	184,074.03	221.89				82,110.69	49.95	23,767.68	290,224.24
Board of Ordnance and Fortification	12,012.28	47,505.86				1,739.11		143,660.73	204,917.98
Field artillery for organized militia	103,268.07	918.09				39,223.90	128.00	441,899.81	585,437.87
Armament of fortifications	1,994,224.49	16,083.78		$260.00	$7.00	378,954.99		4,712,780.78	7,102,311.04
Submarine mines	390,837.13	4,509.17				34,478.40		248,375.35	678,200.05
Fire control in insular possessions	1,163.55					472.22		24,998.74	26,634.51
Submarine mines in insular possessions	126,990.61	14.33				8,834.55		52,069.91	187,909.40
Fortifications in insular possessions	903,509.06	32,907.04				85,688.74		2,426,579.53	3,448,684.37
Ordnance material (proceeds of sales)	66,229.00		$91,118.51			27,007.13		57,714.89	242,069.53
Fire control at fortifications	70,685.31					9,463.30		58,664.19	138,812.80
National trophy and medals for rifle contests, 1910	8,783.14	177.80				21.86		17.20	9,000.00
Augusta Arsenal, Augusta, Ga	6,706.85					274.25			6,981.10
Benicia Arsenal, Benicia, Cal	4,440.03					6,831.07		4,934.53	16,205.63
Frankford Arsenal, Philadelphia, Pa	31,248.73	1,260.00				1,367.47			33,876.20

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Proving Ground, Sandy Hook, N. J.	119,039.34	1,034.25			3,100.00	14,187.16		95,775.51	233,136.26
Picatinny Arsenal, Dover, N. J.	96,294.87					31,955.13		65,750.00	194,000.00
Powder Depot, Dover, N. J.	3,876.16					720.52			4,596.68
Army Powder Factory	2,962.00								2,962.00
Ordnance Depot, Manila, P. I.	9,525.81	1,118.70				4,876.73	297.78	9,696.06	25,515.08
Springfield Arsenal, Springfield, Mass.	6,013.94					5,033.54		38,727.73	49,775.21
Rock Island Arsenal, Rock Island, Ill.	84,452.16					16,582.74		68,172.26	169,207.16
Rock Island bridge, Rock Island, Ill., 1910	16,108.43					1,891.57			18,000.00
Rock Island power plant, Rock Island, Ill., 1910	10,533.69					2,229.37			12,763.06
Testing machine, 1910	14,001.57					3,446.29		77.44	17,525.30
Watertown Arsenal, Watertown, Mass.	22,968.83					16,201.28		36,314.24	75,484.35
Replacing and repairing ordnance property at Gulf forts	835.05	48.50				.03		29,850.31	30,733.89
Watervliet Arsenal, West Troy, N. Y.	1,919.36					1,476.40		5,432.02	8,827.78
Encampment and maneuvers:									
Organized militia	24,013.17								24,013.17
Organized militia, 1909–1911	28,483.13	36,808.64				2,262.10			67,553.87
Organized militia, 1910–1912	43,973.27							60,000.00	103,973.27
Powder and projectiles (proceeds of sales)	13,226.71					8,967.86		10,971.91	33,166.48
Ordnance service, 1908	5.00	257.75			5,548.23				5,810.98
Replacing ordnance and ordnance stores, 1907 and 1908	9,573.41	70.93			645.00				10,289.34
Manufacture of arms, 1907 and 1908	1,453.39				2,688.64				4,142.03
Fire control in field batteries, 1908					668.36				668.36
Repairs of arsenals, 1908	273.75				4,219.74				4,493.49
National trophy and medals for rifle contests, 1908					907.45				907.45
Rock Island bridge, Rock Island, Ill., 1908					1.87				1.87
Testing machine, 1908		1.63			1,024.78				1,026.41
Converting muzzle-loading guns for saluting purposes								2.98	2.98
Reconstructing Rock Island bridge and viaduct					120.49				120.49
Ordnance stores and supplies, 1907	2,054.15				4,706.06				6,760.21
Rock Island power plant, Rock Island, Ill., 1908					1,298.81				1,298.81
Field artillery for organized militia, 1907					249.70				249.70
Ordnance service, 1909	33,013.33	6,250.98						4,552.27	43,816.58
Ordnance stores, ammunition, 1908 and 1909	1,449.60					57.37		883.33	2,390.30
Ordnance stores and supplies, 1908 and 1909	114,507.23	107.45				1,587.22		2,801.61	119,003.51
Small-arms target practice, 1908 and 1909	14,366.64	151.64						3,936.45	18,454.73
Replacing ordnance and ordnance stores, 1908 and 1909	936,441.91	1,334.96				28,738.13		560,844.24	1,527,359.24
Manufacture of arms, 1908 and 1909	32,935.38							1,329.45	34,264.83
Repairs of arsenals, 1909	103,437.97	2,225.16				3.11	1.20	6,790.19	112,457.63
Equipment of coast artillery, organized militia, 1909	11,284.61	475.79							11,760.40
New arms and equipments for organized militia	7.98				a.21				8.19
Rock Island bridge, Rock Island, Ill., 1909	1,678.17								1,678.17
Rock Island power plant, Rock Island, Ill., 1909	4,611.72							906.71	5,518.43
Testing machine, 1909	3,571.80							303.05	3,874.85
Replacing ordnance and ordnance stores, 1906 and 1907					16.55				16.55

a Revoked by Secretary of War.

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Statement showing receipts and expenditures of appropriations under control of the Ordnance Department for the fiscal year ended June 30, 1910—Con.

EXPENDITURES—Continued.

Appropriations.	Amount of expenditures during the fiscal year ended June 30, 1910.	Amount paid and transferred on Treasury settlement during the fiscal year ended June 30, 1910.	Amount deposited in the Treasury as proceeds of sales during the fiscal year ended June 30, 1910.	Amount covered into the Treasury on account of miscellaneous receipts during the fiscal year ended June 30, 1910.	Amount covered into the surplus fund of the Treasury on June 30, 1910.	Amount in government depositories to credit of disbursing officers on June 30, 1910.	Amount in the Treasury not reported to credit of the appropriation on June 30, 1910.	Amount in the Treasury to credit of the appropriation on June 30, 1910.	Total.
Manufacture of arms, certified claims		$55.50							$55.50
Miscellaneous receipts				$15,057.34					15,057.34
National defense					$6,109.70				6,109.70
Encampment and maneuvers, organized militia, 1908					46,700.36				46,700.36
National trophy and medals for rifle contests, 1909	$68.91	5.45						$21.75	96.11
Total	11,561,581.85	173,405.25	$91,118.51	15,317.34	78,012.95	$1,556,155.47	$137,795.46	13,072,002.98	26,685,389.81

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The total amount of the appropriations for the fiscal year 1910, including those contained in the act making appropriations for fortifications and other works of defense, approved June 23, 1910, was $10,093,856. The total amount with which the appropriations were credited in accordance with authority of law from sales, transfers, etc., was $2,144,302.13. The total payments made by disbursing officers and by Treasury settlements during the year amounted to $11,734,987.10. The total sales of condemned stores during the year amounted to $91,118.51, all of which was credited on the books of the Treasury Department to "Ordnance material (proceeds of sales)." The total sales to other parties covered into the Treasury Department to the credit of the fund "Miscellaneous receipts" amounted to $15,317.34. The total amount to the credit of disbursing officers on June 30, 1910, was $1,556,155.47, and the total amount in the Treasury on the same date was $13,072,002.98.

FUNDS ON HAND AT THE BEGINNING AND CLOSE OF THE FISCAL YEAR.

The principal amounts on hand at the beginning of the year pertained to the following appropriations:

Ordnance stores and supplies, 1909 and 1910	$328,210.83
Replacing ordnance and ordnance stores, 1908 and 1909	1,520,285.99
Replacing ordnance and ordnance stores, 1909 and 1910	1,295,938.84
Manufacture of arms, 1909 and 1910	983,375.29
Armament of fortifications	5,112,709.83
Fortifications in insular possessions	1,973,872.77
Field artillery for organized militia	585,437.87

The status of these appropriations at the close of the fiscal year will be seen by reference to the tabular statement.

The principal amounts on hand at the close of the fiscal year pertained to the following appropriations:

Ordnance stores and supplies, 1910 and 1911	$408,707.72
Replacing ordnance and ordnance stores, 1909 and 1910	557,382.60
Replacing ordnance and ordnance stores, 1910 and 1911	1,495,489.09
Manufacture of arms, 1910 and 1911	975,888.42
Field artillery for organized militia	481,251.71
Armament of fortifications	5,091,735.77
Fortifications in insular possessions	2,512,268.27

The above amounts under the appropriations "Armament of fortifications" and "Fortifications in insular possessions," include the sums of $1,970,000 and $1,474,800, which had been appropriated at the last session of Congress under these appropriations, respectively. Under the law these appropriations are available on the approval of the act making them and until used.

The balances under the fund "Replacing ordnance and ordnance stores, 1910 and 1911," and the appropriation "Manufacture of arms, 1910 and 1911," are available for the fiscal year 1911.

Of the above amounts reported on hand at the close of the fiscal year the greater portion in nearly every case had been allotted to meet outstanding obligations. The available balances under the above-named appropriations at the close of the fiscal year are as follows:

Ordnance stores and supplies, 1910 and 1911	$9,950.37
Replacing ordnance and ordnance stores, 1910 and 1911	192,294.01
Manufacture of arms, 1910 and 1911	56,656.97
Armament of fortifications	2,429,547.19
Fortifications in insular possessions	1,994,940.42
Field artillery for organized militia	262,117.21

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It will be seen, in case of the above-named appropriations, that they were largely obligated at the close of the fiscal year, except in case of the appropriations which had been made and increased at the preceding session of Congress.

TRANSFERS AND SALES OF SERVICEABLE ORDNANCE STORES.

The value of ordnance stores transferred to the executive departments and to the organized militia is refunded to ordnance appropriations by Treasury settlements, and the funds received become available the year in which their disposition is effected and remain so during that and the following fiscal year for replacing the stores so transferred. The total value of the stores thus transferred amounted to $1,777,636.51. Of this amount $560,112.58 was on account of transfers to the Navy Department, $128,769.55 on account of transfers to the Marine Corps, $24,680.21 on account of transfers to other executive departments, and $1,064,074.17 on account of transfers to the organized militia. In conducting experiments for the Board of Ordnance and Fortification the value of the ordnance stores which were used in them amounted to $16,082.92, all of which was refunded to ordnance appropriations.

The total of the transfers and sales amounted to $2,144,302.13, which is 21.3 per cent of the total amount appropriated for the use of this department in arming, equipping, and supplying the Regular Army.

PAYMENTS.

The total of the payments made by disbursing officers amounted to $11,561,581.85, and by Treasury settlements to $173,405.25, a total of $11,734,987.10. The appropriations proper for the year amounted to $10,093,856. By reason of the procurement of ordnance stores to replace articles transferred or sold to other departments, etc., the disbursements were about 16.3 per cent in excess of the appropriations.

The amounts of disbursements made at the principal arsenals and in the Ordnance Office during the fiscal year are as follows:

Frankford Arsenal	$2,714,581.15
Rock Island Arsenal	2,988,567.54
Sandy Hook Proving Ground	192,816.69
Springfield Armory	1,311,721.89
Picatinny Arsenal	372,520.18
Watervliet Arsenal	308,673.20
Watertown Arsenal	774,462.57
Ordnance Office	1,964,785.96

AMOUNTS COVERED INTO THE SURPLUS FUND.

The principal amounts covered into the surplus fund of the Treasury were:

Repairs of arsenals, 1908	$4,219.74
Replacing ordnance and ordnance stores, 1907 and 1908	645.00
Manufacture of arms, 1907 and 1908	2,688.64
Ordnance service, 1908	5,548.23
Proving Ground, Sandy Hook, N. J	3,100.00
Encampments and maneuvers, organized militia, 1908	46,700.36

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COMPARISON OF THE FISCAL STATEMENT WITH THAT OF THE PRECEDING YEAR.

Comparing the fiscal statement with that of the preceding year, it will be found that the amount of the appropriations was increased from $9,945,276.77 to $10,093,856, an increase of $148,579.23; the amount of disbursements decreased from $12,837,060.98 to $11,734,987.10. The amount received from transfers to executive departments and the organized militia decreased from $3,953,525.24 to $1,777,636.51. The amount available for disbursement at the close of the fiscal year increased from $14,390,940.77 to $14,765,953.91, an increase of $375,013.14.

COST KEEPING.

The statement has been rather frequently made during the past year that the Government's methods are not economical, and considerable stress has been laid in the public prints, and even in government publications, upon the alleged fact that very little is known about the actual cost of articles produced in the industrial operations of the Government, and that millions of dollars might be saved annually if these operations were conducted with businesslike efficiency. The Ordnance Department has not been specifically included in this statement, but neither has it been specifically excluded, and the department shares in the general charge of looseness of administration which is applied indiscriminately to government industries. So far as this department is concerned the charge of looseness is not founded upon fact, nor upon any examination or close knowledge of the administrative methods which are followed. For many years past special attention has been given by the department to the system of accountability under which its funds are expended, and to the insurance that only the amount allotted for each particular manufacture shall be expended upon the object for which the allotment is made. A detailed and comprehensive system of keeping track of the labor cost of all work done, and of the material used, is, and has been, in practice, and the results are accurate and reliable. In addition, in all statements of costs, and in its price lists issued for the use of the service, there have been included those overhead charges and administrative expenses, such as interest on the value of the plant, depreciation, pay of officers and enlisted men, etc., which private manufacturers must take into account, and which it has been rather the fashion to assert that the Government takes no notice of. In the actual methods of manufacture, as distinguished from cost keeping and money accountability, the department has been abreast of the best manufacturing establishments of the country doing the same class of work. It has employed to a large extent the piecework system of compensation, and the salaries paid for clerical and other assistance have not been high; while the wages of the workmen have been based upon the scale in vogue in the vicinity of the arsenal where the men are employed.

In my annual reports for several years I have drawn attention to this subject, have stated in some detail what the financial methods of the department are, and have given many specific instances of less cost of articles manufactured at the arsenals than that of the

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same articles purchased from private manufacturers. I do not quite see how I could have more plainly set forth the facts necessary to preserve this department from the general charge which has been made, and which can not be otherwise than discouraging to the skillful and conscientious officers in command of its various manufacturing establishments, and their assistants, who have been successful in seeing that the Government has had a suitable return from the funds which have been confided to their charge. I invite comparison of the business and industrial methods in practice at the arsenals with those of the best conducted private establishments in the country.

The following tabulation shows the principal items of manufacture during the fiscal year ended June 30, 1910, at the five large manufacturing arsenals, the total amount expended for the manufacture of each class of material during the year, and the total amount spent for manufacture of all these materials at each arsenal.

Manufactures, fiscal year 1910.

Class of material.	Ordnance establishments.					Total.
	Rock Island Arsenal.	Springfield Armory.	Frankford Arsenal.	Watervliet Arsenal.	Watertown Arsenal.	
Mobile artillery and equipments, supplies, etc	$487,207.55	$12,249.11	$79,176.44	$116,453.27	$106.97	$695,193.34
Seacoast artillery and equipments, supplies, etc	9,759.26	1,745.00	78,321.53	285,331.11	250,935.62	626,092.52
Personal equipments	570,769.03	44,973.09	.....	.....	.....	615,742.12
Horse equipments	290,836.74	.....	.....	.....	.....	290,836.74
Small arms and parts	448,813.71	1,022,685.76	736.95	.....	.....	1,472,236.42
Target material	175,612.59	960.00	311.73	.....	16,653.93	193,538.25
Artillery ammunition	40,242.43	.....	850,083.16	.....	.....	890,325.59
Small-arms ammunition	.....	.....	2,452,723.44	.....	.....	2,452,723.44
General supplies	165,998.61	13,228.20	2,551.50	2,897.37	25,302.68	209,978.36
Total	2,189,239.92	1,095,841.16	3,463,904.75	404,681.75	292,999.20	7,446,666.78

EXAMINATION AND SETTLEMENT OF ORDNANCE PROPERTY RETURNS.

STATUS OF THE WORK.

The work of the examination and settlement of property returns during the fiscal year is set forth in the following table:

Returns.	On hand July 1, 1909.		Received during year.	Examined during year.	Settled during year.	Returned to officers for correction and not yet received back.	On hand June 30, 1910.	
	Unexamined.	Examined and not settled.					Unexamined.	Examined and not settled.
Arsenals and inspectors	21	7	84	105	97	.....	.....	15
Coast artillery	71	100	574	643	727	2	.....	16
Field artillery	1	63	152	153	190	.....	.....	26
Cavalry	216	49	679	895	864	.....	.....	80
Infantry	8	152	1,454	1,461	1,517	1	.....	96
Surgeons	2	34	580	582	610	.....	.....	6
Philippine Scouts	.....	47	182	182	196	.....	.....	33
Artillery districts	8	27	57	65	89	.....	.....	3
Forts and posts	49	60	604	653	668	.....	.....	45
Submarine mine property	.....	7	104	104	107	.....	.....	4
Militia	1	21	55	56	52	.....	.....	25
Colleges	1	16	217	218	226	.....	.....	8
Miscellaneous	217	15	3,282	3,499	3,448	.....	.....	66
Total	595	598	8,024	8,616	8,791	3	.....	423

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The foregoing table shows that at the beginning of the fiscal year there were 595 returns on hand unexamined, and 598 which had been examined but not settled on account of errors and other reasons; 8,024 returns were received during the year, 8,616 examined, and 8,791 settled. Three were sent back to the accountable officers for correction, and none remained on hand unexamined at the close of the year. This condition is highly satisfactory and has not before been attained.

A comparison of the above table with that of the preceding year shows that there were 1,946 more returns received during the fiscal year 1910 than during the fiscal year 1909, 2,968 more returns examined during 1910 than during 1909, and 3,133 more settled during 1910 than during 1909.

Because of the increase in the number of returns being received, and the backward condition of the work at the beginning of the fiscal year—there being then on hand unexamined 595 of the larger returns previously received from the arsenals and from the organizations of the army, militia, colleges, etc.—it was seen early in the year that the force available for doing the work of the property division could not audit all the returns and bring the work of the division up to date by the close of the fiscal year unless unusual steps were taken. Therefore, in order to attain the highly desirable result of completing the audit of all the returns received by June 30, 1910, it was necessary to waive certain features of the usual auditing work and also to require the clerks to work overtime as follows: From July 1 to August 21, 1909, one hour each day. (Owing to hot weather no overtime work was required of the clerks between August 21 and October 1, 1909.) From October 1, 1909, to June 13, 1910, one hour each day. The willing and cheerful manner in which the clerks of the division worked the overtime, and the faithfulness and energy displayed by them in performing the enormous amount of work done in bringing the work of the division up to date at the close of the fiscal year, merit appreciation and commendation. In view of the increased force for the property division, authorized by the act of Congress approved June 17, 1910, all of the auditing work has been resumed so that hereafter returns will be properly audited. It is now considered that, with the increased force, all the work of the division can from now on be kept up to date without requiring the force to work overtime, and in addition will permit of extending the scope of the audit to include the keeping of records of the annual expenditures of ordnance property made by individual organizations of the line of the army.

The examination of property returns during the fiscal year shows that the sum of $2,136.82 was paid to the United States by officers of the army to cover the value of ordnance property not properly accounted for by them; that the sum of $23,495.80 was charged against enlisted men to cover the value of property lost or destroyed by them, and that the sum of $4,349.36 was charged against deserters for similar reasons.

The returns examined during the year show that ordnance property to the value of $190,073.42 was dropped from the returns of cavalry, infantry, field artillery, and coast artillery organizations without having been paid for or charged, this property having been lost through unavoidable causes or destroyed in the interests of the

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service. The amount, respectively, for each arm of the service is as follows: Cavalry, $120,159.20; infantry, $25,242.42; field artillery, $42,295.97; and coast artillery, $2,375.83.

The average value of ordnance property dropped from the returns of cavalry, infantry, field artillery, and coast artillery organizations without having been paid for or charged, the property having been lost through unavoidable causes or destroyed in the interests of the services for each organization, is as follows: Cavalry, per regiment, $8,010.61, per troop, $667.55; infantry, per regiment, $841.41, per company, $70.12; field artillery, per regiment, $7,049.33, per battery, $1,174.89. The total amount under this heading for coast artillery is $2,375.83, making an average of $13.98 per company.

The amounts given above are those obtained from the returns examined, and, as elsewhere stated, are not complete, though as nearly so as the extent of the audit possible during the past year permitted. With the increased force now available, and the closer audit proposed, much more exact figures can be obtained in the future. The averages given for the various organizations, however, afford an idea of the approximate property cost of maintenance of each and permit a comparison of the relative cost for the different branches of the service.

In addition to the amounts which were paid to the United States by officers and enlisted men on account of the loss of ordnance property, there was also paid by governors of States, etc., on account of the loss of property issued to them for the use of the organized militia, the sum of $108.74; and by presidents of educational institutions, on account of the loss, etc., of property issued for the use of students thereat, the sum of $1,266.37. The property accounts audited during the fiscal year show that the sum of $10,295.96 was collected from various transportation companies to reimburse the United States for the value of ordnance property which was lost or destroyed while in transit.

To show the concrete effect of the audit given property returns in this office during the past fiscal year, attention is invited to the following statement, showing the amounts collected, deposited, etc., to cover the value of ordnance property lost, destroyed, etc.:

Deposited by officers of the army in compliance with instructions from this office	$2,136.82
Collected by the pay department under stoppages made against the pay of officers of the army after recommendation from this office	623.28
Collected by the post paymaster at Washington, in accordance with requests made by this office	26.70
Deposited by States, etc	108.74
Collected from colleges under demands made by this office	1,266.37
Collected from transportation companies	10,295.96
Deducted in settlements made by the Auditor for the War Department after certified charges made by this office	152.79
Charged against enlisted men on the pay rolls and collected from their pay	23,495.80
Total	38,106.46
Total paid for salaries of clerks in property division during the year	19,600.00
Net saving to the United States resulting from the present system of accountability and the auditing thereof	18,506.46

The excess of the total amount actually collected for lost and destroyed property over the cost of the audit in this office constitutes,

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however, only a portion of the economy effected by and directly due to the audit. The knowledge that the property accounts of all officers charged with accountability for ordnance property are carefully examined, and that all cases involving loss or destruction are closely scrutinized to determine whether the proper care and precaution were observed before relief from financial responsibility is allowed, necessarily exerts a strong influence against careless and lax handling of public property. The material effect of this influence on the conservation of property and the consequent saving to the Government is difficult to estimate, but it may safely be assumed to be many times the amount actually collected.

The new classification of ordnance property and the new system of property accountability adopted and put into use in 1906 have proven very satisfactory, and have so greatly improved the method of accounting for the property of this department at the arsenals, in the hands of the organizations of the army, the militia, and at the various colleges, State universities, etc., that nearly all of the returns are now received within the time required, and it is found that, in most cases, all the property is being duly accounted for on these returns, and also more uniformly under proper classification and nomenclature. Previous to the introduction of this new system, long delays frequently occurred in the rendition of the returns from many of the larger establishments, and from some of the States, educational institutions, etc., and much difficulty was caused and additional work required in endeavoring to have all the property accounted for and shown under uniform nomenclature.

COST OF MAINTENANCE OF ORGANIZATIONS.

The following table gives the maximum and minimum amounts of property dropped from returns examined during the year of troops, batteries, and companies by virtue of approved reports of survey, and the total amount of each regiment of cavalry, infantry, and field artillery, during the calendar year 1909:

CAVALRY.

Regiment.	Station.	Maximum.		Minimum.		Total regiment.
		Troop.	Amount.	Troop.	Amount.	
1	Philippine Islands	E	$1,347.58	F	$521.72	$11,940.26
*2	United States and Philippine Islands	G	1,080.41	H	291.00	7,709.87
3	United States	C	1,493.86	M	124.34	6,883.67
4	do	B	960.28	H	36.35	5,691.09
5	do	D	899.10	I	99.04	4,803.43
6	United States and Philippine Islands	H	1,535.09	C	99.97	11,008.54
7	do	A	1,581.40	D	857.38	14,299.25
8	United States	L	658.60	E	97.03	4,398.11
9	United States and Philippine Islands	E	2,639.91	G	2.32	12,066.07
10	do	H	793.21	D	233.36	5,408.20
11	United States	K	1,914.45	A	96.75	7,996.34
*12	United States and Philippine Islands	M	856.30	A	8.86	4,229.58
*13	Philippine Islands	H	1,427.46	G	6.37	7,076.88
*14	United States and Philippine Islands	M	894.82	C	99.89	5,871.61
15	United States	K	1,424.72	H	353.67	10,776.30
	Total					120,159.20

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INFANTRY.

Regiment.	Station.	Maximum.		Minimum.		Total regiment.
		Company.	Amount.	Company.	Amount.	
1	United States	G	$223.66	H	$46.06	$1,150.88
2	.....do	M	180.03	H	38.99	684.17
*3	Philippine Islands	E	192.35	A	20.24	1,104.57
4	.....do	L	205.50	E	18.81	632.16
5	United States	E	129.35	A	27.33	601.38
6	United States and Philippine Islands	L	202.86	C	28.47	862.69
*7	Philippine Islands	F	168.73	E	30.66	535.38
8	United States	G	203.92	D	24.32	1,286.37
9	.....do	L	89.95	D	4.11	462.42
10	.....do	K	80.15	H	7.00	150.54
11	.....do	E	346.05	K	19.13	1,490.35
*12	United States and Philippine Islands	L	48.38	I	4.53	59.21
13	United States	L	151.37	C	8.40	607.55
14	Philippine Islands	H	208.62	D	44.02	863.47
15	United States	K	199.28	F	57.79	663.14
16	.....do	D	230.74	H	49.59	1,619.60
17	.....do	C	270.48	E	45.88	1,491.27
18	United States and Philippine Islands	G	273.95	M	35.01	395.57
19	United States	B	134.84	D	3.79	242.01
20	United States and Philippine Islands	G	152.19	C	12.90	682.93
*21	.....do	A	113.44	I	3.06	411.58
22	United States	B	117.44	G	49.82	238.63
23	Philippine Islands	D	254.62	E	19.84	992.84
24	United States	L	77.42	F	.90	294.49
25	United States and Philippine Islands	E	499.81	D	42.37	1,730.20
26	.....do	G	173.10	D	47.91	726.23
27	United States	D	443.99	K	27.45	1,866.11
28	.....do	G	158.32	B	24.47	695.22
29	United States and Philippine Islands	L	375.09	C	21.37	1,862.33
30	.....do	L	178.79	F	5.84	839.43
	Total					25,242.42

FIELD ARTILLERY.

Regiment.	Station.	Maximum.		Minimum.		Total regiment.
		Battery.	Amount.	Battery.	Amount.	
1	United States	F	$1,410.50	C	$224.84	$4,598.01
*2	United States and Philippine Islands	D	1,098.13	C	59.55	1,996.09
3	United States	D	1,249.51	B	529.37	5,752.33
4	.....do	B	1,664.35	F	11.70	3,909.69
5	United States and Philippine Islands	A	5,069.55	E	25.63	15,150.18
6	United States	E	2,195.00	F	473.71	10,899.67
	Total					42,295.97

COAST ARTILLERY.

The maximum amount of ordnance property dropped from returns examined during the year, as lost, destroyed, or worn out in service, by virtue of reports of survey or approved inventory and inspection reports, pertained to the Sixty-eighth Company of Coast Artillery and amounted to $236.20. The minimum amount of ordnance property dropped pertained to the Fortieth Company of Coast Artillery, and amounted to only 4 cents.

The total value of this ordnance property dropped from returns examined during the year of coast artillery companies amounted to $2,375.83. Of the returns examined there are 94 companies of coast artillery which did not have any ordnance property dropped as lost, destroyed, or worn out in the service. The coast artillery returns not received or examined are those of the Fiftieth and One hundred and forty-sixth companies.

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The property returns of the following organizations for the second half of the calendar year 1909 have not been received at this office, viz: Troops B and H, Second Cavalry; Troop L, Twelfth Cavalry; Troop B, Thirteenth Cavalry; and troops C and I, Fourteenth Cavalry; Batteries E and F, Second Field Artillery; Companies A, L, and M, Third Infantry; Company E, Seventh Infantry; Companies B and I, Twelfth Infantry; Company F, Twenty-first Infantry. The regiments to which these organizations pertain are indicated by an asterisk (*) to show that for such regiments the total amounts are not complete.

On and after July 1, 1910, the accounts in this office covering expenditure, etc., of ordnance property by the various companies, troops, and batteries of the regular organizations of the line of the army will be kept so as to show under separate headings the value of the ammunition and the value of the target material expended or consumed for target practice and instruction, and also the cost of maintenance of the equipment of the organizations, viz: Value of the property dropped as expended, worn out, lost, destroyed, or consumed; value of the property condemned and turned in to arsenals, etc.; value of the property condemned and sold; value of property lost through the desertion of soldiers; so that by comparing the expenditures of the different organizations it can readily be seen whether or not economy is being exercised in the management of the ordnance property in the hands of each of the organizations. This account will be kept to show such costs for each calendar year, beginning with the year commencing January 1, 1910, and the footings afforded by the total account for the calendar years for each organization will hereafter be given in each of my annual reports, as it is believed that the publishing of such information will result in the exercise of more economy in the management of ordnance property, and will consequently effect a saving to the Government.

During the past year the Ordnance Property Regulations have been revised and brought up to date. This much needed work was ably and creditably performed by Maj. George Montgomery, and marked the close of a tour of duty in this office embracing a period of six years, in which he was instrumental in devising and putting into effect many valuable improvements in the financial and property methods of this department. The revised regulations cover the subject so thoroughly that the volume must prove of the greatest assistance to officers in caring and accounting for property, and will also be of material value to this office in the correspondence inviting attention of accountable officers to errors discovered in returns.

The subject of property accountability is a very troublesome one for the army, and some experienced and thoughtful officers believe that the expenditure of energy in paper work, and in looking after the methods of relief from accountability, is not compensated by any saving to the Government which results from the system. It is not certain that a better system could not be devised, and it is believed that in certain foreign armies the method followed is much simpler, but all of these methods have for their sanction the effect upon the officer's career produced by his total efficiency as an officer, as judged by his superiors. In our service, where officers do not serve under a merit system, and where the penalty for inefficiency is very remote and entirely uncertain, it would not seem wise to substitute a method

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under which failure to care for the property in his custody would simply result in an effect upon the officer's efficiency record for the method of money responsibility which now obtains.

WAR PLANS.

Profiting by its experience in the Spanish-American war, this office has, for several years, been working out an efficient system for the armament and equipment of the field armies of the United States in the event of war with a first-class power. These plans are now practically completed.

This work consisted in utilizing the experience of the department and its officers who have served as ordnance officers of troops in the field:

First. In determining, as far as practicable, the things necessary to be done in the event of such a war.

Second. In making all the preliminary arrangements for the proper distribution and issue of the required ordnance and ordnance stores.

Third. In providing for the execution of the remaining steps in their proper sequence upon the declaration of war.

The plans are based upon the following premises:

First. That the line of the Regular Army will be immediately increased to its maximum enlisted strength as provided for by law.

Second. That the entire organized militia of the country will be mustered into the service of the United States, at its full war strength, in advance of any volunteer forces, as provided for by law. The organized militia is now armed and equipped as provided for the Regular Army.

Third. That sufficient arms, equipments, and ammunition will be on hand, either in the hands of troops or in store, for the enlarged Regular Army and the enlarged organized militia referred to above, with a surplus for an additional force, which surplus will be greater in some articles than in others, being designed to be greatest in those things which take the longest time for their production; and that purchase and manufacture of additional ordnance and ordnance stores will be immediately accelerated, taking advantage of the interval which would be required for the organization of new troops.

Fourth. That all United States troops—Regulars, Militia, and Volunteers—will be fully armed and equipped at camps of concentration before being sent to the scenes of operation.

To carry out the plan outlined above, the following preliminary steps have been taken:

First. The Ordnance Office maintains up-to-date statements of the reserve ordnance and ordnance stores on hand at the arsenals, and of the ordnance stores necessary to complete the armament and equipment of the troops mentioned above, together with the cost thereof, the cost required to equip volunteers in multiples of 100,000 men, and the unit cost of equipment and maintenance for six months of each kind of soldier. Based upon these statements, estimates of funds required for any number of troops in the field can be quickly furnished the Secretary of War for transmission to Congress.

The department has on hand complete information as to the capacities of the various arsenals, private manufactories, and powder mills of this country for the production of war material.

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The office also has on hand drafts of letters of instruction to be sent by the War Department, in event of war, to the governors of States concerning the issue of ordnance and ordnance stores to militia and volunteers and accounting for the same; to arsenal commanders; to inspectors of ordnance at various manufacturing establishments; to contractors; and to all other officers who may need them, as far as can be determined in advance.

It has also plans for additional ordnance officers and enlisted men, and for the expansion of the clerical forces of the office and arsenals dependent upon the number of troops called into the service.

Second. As far as the appropriations of the department permit, reserve supplies of materials for the manufacture of ordnance stores have been accumulated at the various arsenals.

A plan for the material to be procured, and its cost, and other steps to be taken in case of war, has been prepared for each arsenal, so that the arsenals can be started upon the receipt of brief telegrams to go ahead upon the plans.

There has also been prepared a series of instructions to bidders and specifications governing the manufacture and inspection of practically all of the kinds of ordnance material procurable by purchase.

Third. The department has also worked out a system of division field ordnance depots. Each depot will have the necessary personnel, tools, ordnance stores, and supplies for maintaining for six months a complete division composed of 9 regiments of infantry, 1 regiment of cavalry, 2 regiments of field artillery, 1 battalion of engineers, 1 company of signal corps, and 4 field hospitals, aggregating 611 officers and 21,052 enlisted men. The division depots are arranged so that they can be readily combined into field army depots. These field depots would be placed first at the camps of concentration and afterwards follow the troops into the field. Eleven of these depots have already been stored at arsenals situated convenient to probable camps of concentration of troops for war. Steps are being taken to establish the remaining depots. The depots established are complete, even to the stationery and blank check books required.

Fourth. The country has been divided into a number of ordnance supply districts, each supplied from an arsenal situated therein, where are stored all the small arms, personal equipments, and horse equipments necessary to bring the infantry and cavalry of the Regular Army and the organized militia of the district to its war strength. There is also on hand at these arsenals a six months' supply of ammunition, cleaning materials, etc., for the troops within the supply radius.

Fifth. The department has prepared a simple scheme for the rapid equipment with all necessary ordnance stores of a force composed of the several branches of the service, by listing, for example, the arms, equipments, and ammunition necessary to increase one regiment of the regular infantry or one regiment of the regular cavalry to war strength, or the arms and equipments necessary for a volunteer regiment of infantry. The necessary articles for these and other purposes are printed on blanks designated "War No. 1," "War No. 2," etc., and distributed to the various issuing arsenals. Each printed form is further divided into parts covering the different classes of stores necessary for the case in question, such as arms,

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equipments, ammunition, supplies. Consequently, in the event of any emergency, the majority of orders will be given by brief telegrams, such as "Ship by freight war number one to ordnance officer * * * regiment volunteer infantry at * * * ," instead of the long telegrams necessary for this purpose during the Spanish-American war.

The division of each war order into parts also enables any part, such as the mess outfit (part 1) to be sent by express, if deemed necessary in order to facilitate the feeding of troops upon arrival at the camps of concentration. Such a telegram would be "Ship by express part one war number one to ordnance officer * * * regiment of volunteer infantry at * * * ."

Sixth: A pamphlet has been prepared and will soon be printed setting forth the duties that pertain to the commanding officer of an ordnance depot in time of war, and those that pertain to chief ordnance officers of divisions, field armies, armies, and the lines of communication.

It should be noted that the field artillery supplies and ammunition required under the above system, both as reserve supplies and at the ordnance depots, are largely lacking, but there are on hand good quantities of small arms, personal accouterments, and horse equipments. This unfortunate state of affairs in regard to field artillery is due largely to the fact that the appropriations for field artillery material have been quite inadequate to carry out the plans of the department for the proportionate number of batteries for the forces previously mentioned.

SMALL ARMS.

United States rifle, model of 1903.—Reports were received of a considerable breakage of firing pins and strikers in the United States rifle, model of 1903. In order to overcome the defects reported, without changing the rifle in any other respect, the firing pin and striker was strengthened by adding small fillets at the shoulders, and the heat treatment of the metal was improved so that it is believed the defect has been overcome.

Butt plate for United States rifle, model of 1903.—A butt plate having its exposed surface checked has been adopted. Tests of this butt plate demonstrated its superiority over the smooth butt plate in that the checked surface prevents the rifle slipping from the shoulder during firing, and that it does not polish so readily; the latter point rendering it more satisfactory as to invisibility for mounted troops. All rifles now being manufactured are fitted with the new design of butt plate.

Gallery practice rifle, model of 1903.—Reports were received that the strikers in gallery practice rifles were broken during firing. Action has been taken to reduce the strength of the main spring for this rifle from the limits of 16 to 18 pounds at cocked height to the limits of 10 to 12 pounds. The main springs have been copper-coated in order that they may be readily distinguished from the main spring of the service rifle. Issues of the new springs to the service have been completed. It is expected that this change will remedy this defect.

Maxim silencer.—Several designs of Maxim silencer have been submitted for test since my last annual report. One of the designs submitted, much smaller and stronger than those first tested, was found

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to overcome most of the defects found in the orginal. The rear of the silencer is extended to fit over the end of the barrel and takes the place of the front sight fixed stud. The silencer is prevented from turning by means of a spline on the barrel, and is held from moving longitudinally by means of a pin. The front sight movable stud is mounted on the silencer.

Five hundred of the silencers are now being procured with a view to the issue of one or more to each organization for instruction of recruits in target practice, and for issue to the militia, on requisition.

Automatic pistols.—The Colt's and Savage automatic pistols, caliber .45, which were issued to the service for test, had to be returned to the respective manufacturers for alterations and repairs, and then were again issued to the service. Further tests have been made with the Colt's altered pistols and reports rendered thereon by the commanding officers of the troops equipped with these arms. The Colt's pistol gave generally satisfactory results as regards operation during these tests. Since the completion of the tests, the Colt's Patent Fire Arms Manufacturing Company has submitted two additional designs of pistols which have given the best results, mechanically considered, thus far obtained with any automatic pistols tested by this department. The reports of tests of the altered Savage pistols have not been received from the troops. The Savage Arms Company submitted a repaired automatic pistol to this office for test. It was withdrawn for further repair, after considerable firing, as the test was not entirely satisfactory, due largely to breakage of several parts. It is thought that it can be decided during the next four months whether an automatic pistol or a revolver, caliber .45 in either case, should be adopted for service.

Semiautomatic shoulder rifles.—The department is endeavoring to develop or procure a semiautomatic shoulder rifle which will prove satisfactory as a military weapon. Three designs developed in the department are being given preliminary and shop tests. Two designs of rifles submitted by private individuals have been tested to some extent. This subject is still considered to be in an experimental stage, but there is promise of ultimate success.

Metallic fouling.—By the use of the new primer composition, No. 42, and of graphited powder in ball cartridges, caliber .30, metallic fouling in the service rifle has been very largely reduced. As there is on hand some ammunition of the earlier manufacture which produces metallic fouling, and which must be used up before the ammunition containing the new primer and graphited powder is generally issued, arrangements have been made to supply the necessary materials for removing metallic fouling from rifle barrels.

New primer for caliber .30 ammunition.—Tests of the new primer composition referred to in my last annual report having demonstrated that it reduces metallic fouling to a considerable extent, this composition has been adopted and will be known as the No. 42 primer.

Ball cartridge, caliber .30, model of 1906, and ball cartridge, caliber .38.—The caliber .30 rifle ball cartridges, taken from the current product of the Frankford Arsenal and entered in the competitive tests to select ammunition for use in the national matches, was second in accuracy of the four different makes tested, and the caliber .38 revolver ball cartridges of the Frankford Arsenal manu-

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facture entered in the same competitive tests proved the most accurate of the six different makes tested—an excellent showing for the standard ammunition of the army.

Packing box for caliber .30 ammunition.—Experiments have been conducted with various designs of packing boxes for caliber .30 ball cartridges, and as a result of these experiments a metal packing box has been adopted. The box holds 20 bandoleers (1,200 rounds) of model of 1906 ball cartridges, and is 6 pounds lighter than the old design of wooden box. The box is designed, and the handles are so placed that it can be readily handled by one man. Two of these boxes can be conveniently loaded on a pack animal, and the ammunition can be quickly withdrawn without removing the boxes from the pack saddle. The metal box is considered to possess the maximum strength, to occupy the minimum space for storage and wagon transportation, and to have the minimum weight consistent with economy of construction. At least 15 cents each will be saved in the manufacture of the metal boxes, amounting annually to $10,000, and it is expected that a greater saving will result from the fact that the boxes can be used several times. The saving in cubic space by the use of the metal box will allow at least 30 per cent more ammunition to be stored in arsenals, storehouses, and magazines than could be stored in wooden boxes in the same space. The empty boxes, being water-tight, may also be used by troops, in an emergency, for cooking, or hauling and storing water.

EQUIPMENTS.

Bandoleer.—The bandoleer mentioned in my last annual report has been adopted after being slightly modified. It is estimated that the new form of bandoleer will effect a saving, at the present rate of production of ball cartridges, caliber .30, of $8,000 per year.

Infantry equipment board.—The infantry equipment board, which assembled at the Rock Island Arsenal to select equipments for the infantry soldier, rendered its report on April 5, 1910, and the recommendations, so far as they concerned this department, were approved by the Secretary of War on June 11, 1910, with a few modifications. Action was immediately taken to manufacture a sufficient number of equipments to equip 11 battalions of infantry. It was desired to equip 1 battalion with the new equipment at as many of the camps of instruction, which are being held during the present summer, as possible, in order that the new equipment might be demonstrated during the exercises at the camps. It is now hoped that such equipments can be forwarded to the camps of instruction at Fort Riley, Kans., Atascadero, Cal., and Fort Benjamin Harrison, Ind. An order has been given to the commanding officer of the Rock Island Arsenal to manufacture a sufficient number of the new equipments to equip the infantry and engineers of the army. It is hoped that they will be completed during the present fiscal year. When appropriations are made to this department for the next fiscal year action will be taken to manufacture a sufficient number of the new equipments for the coast artillery corps and the Philippine Scouts.

Cavalry equipment board.—A board of officers to consider and report upon the changes, if any, that should be made in cavalry

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horse equipments and in the personal equipments of the cavalry soldier (rifle and pistol excepted), and in the cavalry pack, has been assembled at the Rock Island Arsenal. This board has before it samples of the equipments in use in the principal foreign armies, and is considering, besides, a large variety of experimental equipments. It is expected that the conclusions of the board will result in the adoption of superior equipments for this branch of the service.

Measuring device for saddle.—Two of the devices for measuring the backs of cavalry horses mentioned in my last annual report have been completed, one of which has been sent to the Philippine Islands, and the other is being used at various posts throughout the United States. As soon as sufficient measurements have been made, a type saddle will be manufactured with bearing surfaces on bottom of tree to conform to the average measurements thus obtained.

Range finder for infantry.—Experiments are being made at the School of Musketry with two different designs of range finders for infantry use, with a view to obtaining a more satisfactory range finder for this purpose. The instruments being tested are a telemeter after the design of the Aubrey telemeter, and a modified design of a range finder proposed by Capt. H. E. Eames, Tenth Infantry.

Aiken standard treadle target.—The Aiken standard targets, with and without treadle attachment, have been tested at the School of Musketry. The target with treadle was recommended for adoption, with minor changes.

Bremer electrically operated automatic target for use in small-arms target practice.—Upon recommendation of the School of Musketry action has been taken to purchase from the manufacturers one of the Bremer electrically operated automatic targets. This target will contain 27 segments, and is for use at ranges for which the paper target B is now supplied to the army. When it is received it will be forwarded to the School of Musketry for test and report. Action has also been taken to procure a Chevallier electrically operated target of silhouette design to be tested in connection with the Bremer target.

Target spotters.—Perfection target spotters, for use in small-arms target practice, have been adopted for issue, in three sizes—3 inches across for target A, 5 inches across for target B, and 10 inches across for target C. They are made of heavy bookbinder's board, red on one side and black on the other, of octagonal shape, with a wire attachment which is inserted in the shot hole.

Issue of ordnance stores to troops stationed at regimental posts.—In order to test the system of issue of ordnance and ordnance stores to troops by post ordnance officers, and reissue of worn but serviceable ordnance and ordnance stores, instructions were given to the commanding officers of troops stationed at Fort Riley and Fort Leavenworth to turn in to the post ordnance officer the surplus serviceable ordnance stores in the possession of troops. Instructions were also given to the commanding officer of the Rock Island Arsenal to issue to the post ordnance officers at Forts Riley and Leavenworth a quantity of ordnance and ordnance stores. It is the intention to have issued to troops stationed at the post such stores as are turned over to the post ordnance officer in serviceable condition, until the stores become worn out or unserviceable. Stores marked with the company, troop, or battery number will be reissued to the same organization, if practicable. The stores issued from the Rock Island Arsenal, together with

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the other stores, are to be held on hand for issue to troops for replacements, thus saving the cost of transportation on numerous small shipments of ordnance and ordnance stores, and to facilitate issues. After this system shall have been in operation for six months a report will be rendered as to the working thereof. Preliminary reports show a reduction in the number of small shipments from Rock Island Arsenal.

Disposition of unserviceable ordnance stores.—In view of the fact that a considerable quantity of worthless ordnance stores was turned into ordnance establishments, action was taken to have Circular 79, War Department, November 26, 1909, giving a detailed statement showing the considerations that should govern an inspector in ordering the disposition of ordnance property so far as pertains to personal and horse equipments, published for the guidance of inspectors. This circular is based on the general principle that many of the stores which are now turned into an arsenal as unserviceable should be retained and repaired in the organizations to which they belong, as the supplies furnished for repairs are liberal in amount. These remarks apply more particularly to cavalry and field artillery organizations, which, since the establishment of the training school for saddlers at the Rock Island Arsenal, should be able to execute satisfactorily a large variety of repair work. By carefully defining what articles can not be repaired at an arsenal, the quantity of worthless material received at ordnance establishments has been greatly reduced, thus saving the cost of the handling of such material in ordnance establishments as well as the cost of transportation.

GUNS AND MORTARS.

Reports from armament officers, post ordnance officers, and battery commanders indicate that the guns and mortars mounted in seacoast fortifications have been maintained in a state of efficiency during the year. The only guns which developed serious defects during the extensive firings of the past year were two 3-inch (15-pounders) which had to be withdrawn from service, due to defective metal in the jackets, not apparent when the guns were manufactured, but developed by the pressures set up in firing.

The department has continued its investigations concerning the causes of erosion in cannon and the best means of preventing it. Results of considerable promise have recently been obtained from firings with certain 6-pounder guns.

By means of a special apparatus developed for use in photographing the bores of cannon, the study of the development of heat cracks is expected to be greatly facilitated.

Three of the 14-inch guns referred to in my last annual report as under construction were completed during the year. The first of these is undergoing test and has thus far given very satisfactory results. This gun is of the wire-wrapped type, a method of construction which is being extended to all seacoast cannon of 6-inch caliber and over. With this method of construction an equally efficient gun is obtained with about 20 per cent reduction in the cost as compared with that of guns of the built-up type heretofore in general use.

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A 6-inch gun and a 12-inch gun which had been fired until the limit of their accuracy life was reached were restored to a serviceable condition by the insertion of a lining tube extending the entire length of the bore. Both of these relined guns have since successfully withstood very severe tests.

Work has progressed satisfactorily on the six 6-inch and four 14-inch guns specified in my last annual report as having been authorized by Congress.

THE FORT MONROE ACCIDENT.

A distressing accident at Fort Monroe on July 21, 1910, caused the death of 11 men of the coast artillery. The accident occurred through the premature discharge of a gun at target practice. The gun was mounted upon a disappearing carriage, and the firing mechanism is designed with the object of preventing the possibility of discharging the gun until after the breechblock has been closed and locked, and the gun shall have been tripped and shall have risen to the firing position. As the men who were directly concerned with the handling of the breech mechanism were all killed, it was only possible to arrive at a conclusion as to the cause of the accident by inference from what might have happened, coupled with such evidence as could be obtained from onlookers at a little distance from the gun.

An examination of other guns of the same class at Fort Monroe, made after the accident, disclosed the fact that there was one gun which could be fired, before the locking of the breech, by a sufficiently sudden and powerful pull, in the proper direction, upon the lanyard. The firing mechanism is somewhat delicate, because of the lack of sufficient space for the utilization of larger and more robust parts, but it was supposed to be sufficient to withstand all reasonable usage. The operations of loading and firing are conducted with extreme rapidity, in the praiseworthy effort to make a good time record, and it is a necessary consequence that the motions are made with great force and violence. In this case it appeared that the command to trip the pawls was given, and the gun started to rise to the firing position before the breechblock was pushed home, preparatory to rotating and locking it, and before the lanyard was hooked, which was contrary to the drill regulations, so that the man whose duty it was to hook on the lanyard had to do it while the gun was in motion. Testimony was to the effect that he had some difficulty in hooking, making several passes in his attempt to do so, and that he finally succeeded in getting the lanyard hooked just as the gun was passing out of his reach, when the explosion immediately took place. It is presumed that he inadvertently clung to the lanyard, and gave the sudden and quick pull, which, in the case of the neighboring gun with which it was tried, proved to be sufficient to defeat the safety object of the mechanism, which was not violence proof.

This particular model of firing mechanism has been in use for several years; in drill and at target practice it has been operated thousands of times, and by hundreds of men, and under the supervision of dozens of officers, but no instance of failure has ever been reported. At drill the primer only is used, without powder charge, so that premature discharge would mean only the harmless explosion of the primer. It would, however, be the duty of the officer in charge to report such an occurrence, and as his own safety and that of the men

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under his immediate command would be involved, it is entirely probable that no instance of failure has been allowed to escape unnoticed. It is likely that the continued use and cleaning of the mechanism had so worn and rounded some of the parts as to permit its failure, under the violent pull which was probably given it. All the mechanisms were tested for safety shortly before the firing commenced, and all were apparently in proper condition. It is probable that in testing the officers subjected them only to stresses which they consider such as they would be reasonably likely to meet, but which were less than the violent pull which is supposed to have caused the accident, and to which, in an effort to reproduce it, the mechanisms of the other guns were afterwards subjected. Of course it is entirely possible to so change the mechanism as to prevent the particular accident which occurred.

The system for preventing such accidents is as follows: Inspections are continually made by the battery officers whose troops are serving with the guns. These are educated and intelligent gentlemen, entirely conversant with the material and with all of the objects intended to be accomplished by the different mechanisms. They encourage report to them of any breakages or failures which may escape their observation, but which the men who actually handle the material may notice. There is appointed for each small group of two or three neighboring posts an ordnance officer, a member of the artillery garrison, whose duty it is to generally supervise the armament and to see that it is in working order, and to whom battery officers report anything requiring attention or repair. To make the ordnance officer's function effective there is furnished him, by the Ordnance Department, a skilled machinist, selected from among the employees of one of the arsenals, who resides permanently at his post, and who has, also maintained by the Ordnance Department, a small machine shop, with a few machine tools, and with power, at which he can, with the assistance of helpers detailed from the garrison, effect all ordinary repairs and alterations. In addition, the seacoast is divided into several districts, each of which is under the supervision of an officer of the Ordnance Department for the repair and alteration of the armament, called the armament officer. This officer makes a thorough inspection of all the armament in his district twice a year, at which he is usually accompanied by a foreman to aid him in detecting and remedying defects. He submits a report of each inspection on a form upon which there are printed some half a hundred questions concerning points to which his attention should be especially directed. Among these questions one concerns the safety of the firing mechanism which was involved in this accident. The last inspection of the gun by the armament officer was made in April, at which time it was reported that the safety device was in proper order. This device will now be so modified as to prevent its failure even under the unusual strain to which it was apparently subjected.

GRENADES.

Both the hand grenade and the rifle grenade referred to in my last annual report as undergoing development have been perfected and are being manufactured in quantity. The rifle grenade has shown itself particularly satisfactory in the tests that have been made.

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Various means of carrying the grenades on the person of the soldier have been tested at the Frankford Arsenal and at the Sandy Hook Proving Ground. Those found most promising are to be issued to the service for test.

A limited number of Hale combination hand and rifle grenades, manufactured by the Cotton Powder Company (Limited), of London, have been procured for examination and test in view of the reported success of those grenades in tests abroad.

POWDER.

The Joint Army and Navy Board on Smokeless Powder, consisting of officers of the Navy Bureau of Ordnance and of this department, and including among its members the commanding officers of the army and navy powder factories, has continued its work during the year. The specifications for smokeless powder have been revised to incorporate certain changes deemed desirable.

Due to increase in the dryhouse and blending facilities of the powder manufacturing plants, it has been possible to double the prescribed weight of powder constituting a lot for guns of 5-inch caliber and over, which will reduce by one-half the cost of testing the powder and reduce materially the number of different lots of powder for a given caliber and model of gun constituting the supply of a given artillery district.

The changes referred to in my last annual report as having been made in the composition of cannon powder with a view to improving its stability in storage have proved entirely satisfactory. The specifications governing the manufacture and test of smokeless powder for small arms were revised and reprinted during the year to incorporate changes found desirable. The improvements referred to in my last annual report have proved very successful in reducing erosion and metallic fouling.

GAS-CHECK PADS.

Many gas-check pads containing the improved composition referred to in my last annual report have been issued to the service during the year in replacement of worn-out ones of the older type. The results of firings continue to indicate the decided superiority of the new type.

PROJECTILES FOR MOBILE ARTILLERY.

Much attention has been given during the past year to improvements in projectiles for mobile artillery and particularly toward the development of high-explosive shrapnel. This projectile is a combination of the ordinary shrapnel and of the high-explosive shell, and is intended to do the work of both, thus simplifying the ammunition supply.

The department has designed and manufactured some projectiles of this type for each of the following guns and howitzers pertaining to mobile artillery, viz, 3-inch gun, 3-inch howitzer, 3.8-inch gun, 3.8-inch howitzer, 4.7-inch gun, 4.7-inch howitzer, and 6-inch howitzer. Those heretofore tested in the 3-inch field gun were purchased abroad; but the department is at work on an improved design for that gun.

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AUTOMATIC MACHINE RIFLES.

The first lot of automatic machine rifles, caliber .30, model of 1909, the type referred to in my last annual report as having been submitted by Messrs. Benét and Mercié, will shortly be delivered. Issue to the service will necessarily await the manufacture and test of pack outfits which can not be fully developed until the guns and pertaining material shall have been received. Complete working drawings of all the material, as well as a set of gauges, have been obtained, and additional guns will be manufactured both at the Springfield Armory and by contract with the Colt's Patent Fire Arms Manufacturing Company. In future all of this material for the United States will be fabricated in this country.

MOUNTAIN ARTILLERY.

Test of the new 3-inch mountain howitzer and carriage has indicated the desirability of certain improvements which are now under way.

A combined front and rear sight with a seat for panoramic sight for the 2.95-inch Vickers-Maxim mountain gun, with which our mountain artillery batteries are now armed, has been designed and is undergoing test at the Sandy Hook Proving Ground. If it proves to be satisfactory, a sufficient number will be manufactured for all guns in service. The system is not as desirable for guns of this type as for those which remain stable under firing conditions, but it will be an improvement on the present arrangements and will serve to render the system of fire control with these guns as nearly as possible the same as that used with other field material, including the new mountain howitzer.

PACK OUTFITS.

For 2.95-inch Vickers-Maxim mountain gun material.—Designs for new pack outfits for 2.95-inch mountain gun material have been completed. The loads to be carried have always been heavier than is desired, and the question of the advisability of adding one additional mule for each gun, and thereby reducing practically all of the loads very considerably, has been submitted to a board of mountain artillery officers. As soon as their report shall have been received manufacture will proceed.

For Maxim automatic machine gun, caliber .30.—The reserve pack outfits for this material are under manufacture and should be completed during this fiscal year.

For fire-control equipment for mountain batteries.—Pilot pack outfits for the fire-control equipment for batteries, as well as those for battalion and regimental commanders, have been fabricated and are undergoing test. This includes a pack for a wire reel of a type suggested by Lieut. Dawson Olmstead, Fifth Field Artillery. If found satisfactory, pack outfits of the type referred to will be manufactured and issued.

FIELD-GUN MATERIAL.

Three-inch gun batteries.—Work on this class of equipment continues to remain largely in abeyance because there is a small reserve now on hand, and because the most urgent requirement is for guns and howitzers of larger caliber.

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Three and eight-tenths inch gun batteries.—Manufacture of a limited number of batteries is now in progress.

Four and seven-tenths inch gun batteries.—The manufacture of this material is well forward, the difficulties encountered in developing designs of ammunition vehicles and carriages having been overcome. Two batteries are now ready for issue to the service.

HOWITZER MATERIAL.

Work on such number of batteries of 3.8-inch, 4.7-inch, and 6-inch howitzer material as is permitted by available funds has proceeded during the year. This equipment is of the most modern type, as described in my last annual report, and will add considerably to the strength of the field equipment, although the amount that can be obtained under appropriations made to date is entirely inadequate.

FIRINGS HELD AT FORT RILEY, KANS.

During October of last year a programme of firings with modern field material was carried out at Fort Riley under the auspices of the Board of Ordnance and Fortification, which, while not intended as a test of the mechanical features of the guns and carriages, required that modern equipment should be supplied. In addition to the 3-inch field artillery material, which was on hand at the post and which had been in service for several years, the following were furnished: 3.8-inch gun, 4.7-inch gun, 3-inch mountain howitzer; 3.8-inch, 4.7-inch, and 6-inch howitzers. The number of rounds fired from each gun and howitzer varied from 60 to 98. None of this material except the 3-inch field gun had been subjected to test in service. Only the 3.8-inch gun, the 4.7-inch gun, and the 4.7-inch howitzer had been tested at the Sandy Hook Proving Ground, and the 6-inch howitzer and carriage had been out of the shops less than a month when the test was held. The equipment which had not been tried at the Sandy Hook Proving Ground had been fired sufficiently at the place of manufacture to adjust the throttling areas of the recoil cylinders, and to show that there was no danger of failure from weakness. In view of the entirely new and practically untried designs it was expected that difficulties would be encountered with the mechanical operation of some of the material, as is always to be anticipated in machines which have not been thoroughly tested in actual use. Although some troubles were developed, the programme as originally arranged was carried out without delay due to mechanical operation of the material. These firings furnished data for improvement of the carriages, which have since been utilized.

SUPPLY OF MOBILE ARTILLERY.

The quantity of this material provided for to date is less adequate than that of any other class of fighting equipment. The types needed have been developed and some of each are under manufacture, but the appropriations do not permit of production in any considerable quantity. It is considered that, in case of an emergency of any importance the field artillery equipment would be found to be insufficient, and it is consequently thought that the financial conditions which have rendered impossible the acquisition of a much larger reserve are unfortunate.

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COAST ARTILLERY PRACTICE.

Reports received during the year show continued improvements in the results of coast artillery target practice.

The work of calibrating the guns mounted in the different fortifications to determine as far as possible the probable error of each gun and mount, inaugurated two years ago, has been continued during the past year. Many of the batteries have thus far been calibrated, and it is intended to ultimately make such firings from all guns in service, except those located at places where target practice is not practicable.

A joint board of artillery officers and of ordnance officers was appointed in November, 1909, to meet at the Sandy Hook Proving Ground for the purpose of making a study of all features of guns, carriages, ammunition, fire-control instruments, range tables and range charts, with the object of determining their probable effect upon the accuracy of fire with seacoast cannon. The work of this board is now in progress. It is expected to secure data of material value in connection with the improvement of the present range board and range tables and in the determination of the influence of certain mechanical features of the carriages upon the accuracy of fire.

The material targets, 60 feet long by 30 feet high, referred to in my last annual report as having been procured for use at target practice with guns over 4 inches in caliber, have proved satisfactory in service, although rather expensive to construct and maintain.

FIELD ARTILLERY PRACTICE.

Reports received from regimental, battalion, and battery commanders during the year indicate that the ammunition of the 3-inch field artillery material is giving excellent satisfaction in service.

The fuzes of 2,000 shrapnel forwarded to Fort Riley for use during the current target practice season are equipped with a modified means of setting the fuze, whereby it is hoped to secure greater accuracy of results. Special fuze setters correspondingly modified were forwarded for use with these shrapnel.

In order to be able to furnish a greater number of rounds of target-practice ammunition within the limits of the appropriation annually provided by Congress, there are now under construction, with a view to their test, a limited number of projectiles of the form, size, and weight of the 3-inch shrapnel, but consisting of a cast-iron body provided with a bursting charge and equipped with the standard 21-second fuze. While such projectiles will cost materially less than the service shrapnel, they will have all its advantages as far as concerns target practice, except the securing of the actual hits which come from the shrapnel balls.

Some trouble was experienced during the year with field-gun ammunition and mountain-gun ammunition on hand in the Philippine Islands, due to the penetration of moisture into the active elements of the fuze and primer. This trouble arose principally with ammunition of foreign manufacture procured some years ago, in which the fuzes were not provided with a hood such as is being employed on all shrapnel of our own manufacture. Steps have been taken to replace the defective elements in the fuzes in question.

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Covers of olive drab, with figures stenciled thereon, are considered desirable for field artillery targets, but the increased cost has prevented their issue during the current year to any troops except those stationed at Fort Riley, Kans.

THE ARMY POWDER FACTORY.

The Army Powder Factory at Picatinny Arsenal, Dover, N. J., was operated throughout the year with gratifying success, the daily output being approximately 1,000 pounds of cannon powder.

The lots that have been completely dried and tested have been found to be of excellent quality. In the construction of a powder factory and the manufacture of smokeless powder the department entered a new field, and it is very gratifying that not only was a powder factory of the promised capacity constructed within the estimated cost, but that from the first the product has been of a satisfactory quality. For the construction and successful operation of this plant much credit is due to Maj. Odus C. Horney, who has been in command of Picatinny Arsenal since June, 1907, and to his assistants.

The factory cost of powder manufactured at the arsenal for cannon was, a year ago, 49½ cents per pound; the last lot manufactured cost about 39½ cents per pound, showing a very material reduction. To these costs should be added the overhead charges for interest, depreciation, etc., which amount to about 16.4 cents per pound, which makes the total cost of the last lot of powder manufactured 55.9 cents per pound. This is about 5 cents per pound less than it was supposed last year that the cost of manufacture could be gotten down to.

The sundry civil act approved March 4, 1909, appropriated $175,000 for the enlargement of the factory, including the necessary accessories and buildings for housing employees, and this work is well advanced. In the preparation of the original plans the possibility of the enlargement of the factory was considered, and the present arrangement is such as to permit of a convenient and systematic enlargement of the capacity contemplated by this additional appropriation, which is 2,000 pounds of smokeless powder for cannon and 1,000 pounds of smokeless powder for small arms per day of eight hours, or, under war conditions, working every day and employing three shifts, 3,285,000 pounds per annum.

The capacity of the factory will be such as would permit, with the employment of only one shift, the manufacture of more than four-fifths of the powder that is now being annually procured, but the department contemplates limiting the output to 1,000 pounds of smokeless powder for cannon and 250 pounds of smokeless powder for small arms per day, holding the remainder of the factory as a reserve. As in case of war or grave danger of war the government and private plants would be taxed to their utmost capacity, the department holds that a proportion of the powder procured in time of peace should be obtained from private firms, as otherwise they could not be expected to maintain their plants in such condition as to undertake at short notice the manufacture of powder. The department also appreciates that if a reserve capacity for the manufacture of smokeless powder is to be available at instant notice, it must necessarily be at a government plant, as private manu-

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facturers can not be expected, without compensation, to maintain in a high state of efficiency portions of plants that are not kept in operation.

FIRE-CONTROL INSTRUMENTS FOR FIELD ARTILLERY.

The two types of Aubrey sextant telemeter referred to in my last annual report have been completed and have been sent to the Field Artillery Board for test.

An improved design of Goerz panoramic sight has been purchased and will be tried in comparison with the present type.

A battery commander's telescope of the latest foreign design has also been obtained and will be tested in competition with the service instrument.

An Erly range finder has also been purchased and will be tested. This is the type of instrument used in the Austrian army.

A self-contained, horizontal base range finder for field artillery has been recently sent to Fort Riley for test, although previous experience with this class of instrument has not been very encouraging, due to the disturbing effects of heat and the very short base that must be used.

RANGE-FINDING INSTRUMENTS, SEACOAST.

Swasey depression position finder.—The application of earth curvature correctors to most of these instruments has been completed.

Barr & Stroud 9-foot self-contained horizontal base range finders.—The twenty instruments referred to in my last annual report have been delivered and are in service.

Warner & Swasey azimuth instruments, model of 1910.—A competitive test of azimuth instruments was held by the Coast Artillery Board during November of 1909, resulting in the submission of three instruments. That of the Warner & Swasey Company was found to be most suitable for service use and has been adopted. Minor improvements in gearing and lighting have been obtained, and the telescope is greatly superior to the older designs. It has a 3-inch clear aperture and is equal to the best of all types in service. A number are under manufacture.

Material for fire-control and direction system at seacoast fortifications.—The work has proceeded during the year to the limit of available funds, and the equipment is now fairly adequate, although additional instruments will be required as the standard fire-control is extended.

Fire-control material for militia armories.—This work has proceeded to the limit of available funds.

SEACOAST CARRIAGES.

The first 14-inch gun and disappearing carriage are undergoing test at the Sandy Hook Proving Ground.

The drawings of land turrets for 14-inch guns have been completed and the extra drafting force required in connection therewith discharged. Advertisements for such of the work as must be done by contract have been issued and contracts will be entered into shortly. The remainder of the material was ordered from the Watertown

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Arsenal some time since. Land turrets have not heretofore formed a part of the seacoast defenses of the United States, although their use was considered by the Endicott Board. Special conditions rendered the supply of a limited number necessary, and the work of design and manufacture was undertaken by this department as a result of such necessity. They will undoubtedly form a most powerful addition to the armament of the locality in which they are to be installed.

The design of a 6-inch gun and barbette carriage intended for use behind armor is completed and the material is now being manufactured.

TEN-INCH EMERY DISAPPEARING CARRIAGE.

Mr. Emery has continued work during the year on the 10-inch disappearing carriage of his design being made under contract in accordance with the provisions of the fortifications act approved April 21, 1904, in such manner as he has deemed best.

MAINTENANCE OF THE ARMAMENT OF FORTIFICATIONS.

This work has proceeded satisfactorily during the year, and service guns, mortars, and carriages have been maintained in a good state of efficiency.

IMPROVEMENTS IN INSTALLED SEACOAST CARRIAGES.

Efforts have been continued to make such additions and improvements to these carriages as will keep them up to date. The only limitation is the lack of funds to cover the cost. Completed designs are on hand for material which can not be modified for some years to come unless appropriations are increased. The cost of the modifications is small compared with the benefit that would accrue, since it is practicable to bring up the older types to a rapidity of fire and a general efficiency almost equal to the latest models. Those carriages which have to date been modified are giving excellent service. The older carriages can, of course, be used in their present condition, and it has not been necessary to discard any of the equipment. It nevertheless is regretted that it is necessary to leave them for any considerable length of time approximately one-half as efficient as they could be made by the expenditure of about 2 per cent of the cost of the installed material.

INSPECTOR OF ORDNANCE, RICHMOND, VA.

Maj. Edward P. O'Hern performed the duties of inspector of ordnance at Richmond, Va., and also at the Firth-Sterling Works, Giesboro Manor, D. C., in addition to his duties in the Office of the Chief of Ordnance.

The material under inspection at Richmond consisted of cast-iron projectiles of various calibers under manufacture by the Richmond Iron Works and by The Tredegar Company. Nearly all that contracted for has been completed and delivered.

The material under manufacture by the Firth-Sterling Steel Company consisted of armor-piercing shot and shell for 14-inch guns.

The total value of the property under manufacture and inspection was $288,092; the value of that completed and delivered during the year was $104,787.

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INSPECTOR OF ORDNANCE, BALTIMORE, MD.

Capt. L. T. Hillman performed the duties of inspector of ordnance in Baltimore, Md., during the fiscal year ended June 30, 1910, in addition to his duties in the Office of the Chief of Ordnance, Washington, D. C. During the year 4.7-inch howitzer carriages, model of 1908, have been under manufacture at the works of the Detrick & Harvey Machine Company. The work on these carriages was begun on April 23, 1909, and will probably be completed about April 15, 1911. At the present time the work is approximately 50 per cent completed.

BETHLEHEM STEEL WORKS.

The inspection work pertaining to this office has been under the charge of Col. L. L. Bruff. During the year work was in progress on 7 different contracts made by the Chief of Ordnance, with the Bethlehem Steel Company, comprising 1-pounder common steel shell, 3-inch and 6-inch target practice shell, 6-inch common steel shell, 4.7-inch howitzer carriage limbers, 4.7-inch howitzer caissons, 4.7-inch howitzer limbers, 6-inch siege howitzer carriages and limbers, and wrought-iron lining tube forging for 6-inch wire-wrapped gun.

In addition to the above, work was in progress on axles for 3-inch, 3.8-inch, and 4.7-inch field material, and for 12-inch disappearing carriages; 3-inch, 4.7-inch, and 12-inch mortar shrapnel cases; armor plates, gun forging for 14-inch rifle; 12-inch mortar racer castings; rifle barrel steel; hub boxes and hub rings for caissons and limbers for 6-inch howitzer carriage, and 4.7-inch howitzer carriages, and miscellaneous orders for various grades of steel.

The total value of all material under manufacture during the year was $539,753.21. The total value of material completed during the year was $119,507.70. The total weight of shipments during the year was 857,589 pounds.

INSPECTOR OF ORDNANCE, ALLIANCE, OHIO.

The inspection work pertaining to this office has been in charge of Maj. J. H. Rice during the year in addition to his duties in the Office of the Chief of Ordnance. It has included all ordnance material manufactured in western Pennsylvania and Ohio.

The Alliance Machine Company, Alliance, Ohio.—This company has a contract to manufacture two 12-inch disappearing carriages, L. F., model of 1901. One carriage has been finished and the second is about 95 per cent finished. The company will be about one year behind in the delivery of the last carriage.

The Warner & Swasey Company, Cleveland, Ohio.—This company has a contract for applying earth's curvature attachments to 220 Swasey depression position finders, types A and A1; 131 of these instruments were altered during the fiscal year. This company completed its contract for observation telescopes, seacoast, model of 1908, during the fiscal year.

In addition to the above, the office has had under inspection at various places material for contractors and other ordnance establishments. The work comprised 38 different orders or contracts for

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manufacture at 12 different establishments. The principal articles inspected were steel for magazine rifles, armor plate for howitzer material, steel springs, intrenching hand axes, chains, tire steel, forged steel, and axle forgings.

The total value of all contracts and orders under inspection during the year was $189,010. The total value of material delivered during the year was $145,054.62.

INSPECTOR OF ORDNANCE, MIDVALE STEEL WORKS.

Col. L. L. Bruff performed the duties of inspector of ordnance at the Midvale Steel Works during the fiscal year.

These duties were principally the inspection of projectiles, material for small arms, material for cannon and their carriages, manufactured at the Midvale Steel Works of 12- nch mortar carriages under manufacture at the works of the Southwark Foundry and Machine Company; and of miscellaneous ordnance material under manufacture at 20 other establishments in Philadelphia and vicinity. The total number of orders or contracts was 230. The total value of the material under inspection was $522,187.36, of which that to the value of $383,509.29 was completed. The total quantity of material inspected and shipped was 4,323,700 pounds.

INSPECTOR OF ORDNANCE, BRIDGEPORT, CONN.

Col. Frank Baker performed the duties of inspector of ordnance at Bridgeport, Conn., during the fiscal year. These duties have comprised the inspection of material under manufacture at the works of the following companies: American and British Manufacturing Company, Bridgeport, Conn.; Scovill Manufacturing Company, Waterbury, Conn.; Colt's Patent Fire Arms Manufacturing Company, Hartford, Conn.; E. W. Bliss Company, Brooklyn, N. Y.; Pratt & Whitney Company, Hartford, Conn.; Union Metallic Cartridge Company, Bridgeport, Conn.; Winchester Repeating Arms Company, New Haven, Conn.; United States Cartridge Company, Lowell, Mass.; and Robin Hood Ammunition Company, Swanton, Vt.

The total value of the material under inspection during the year was $568,505.20, and the total value of that delivered and accepted was $439,029.80.

SANDY HOOK PROVING GROUND.

Sandy Hook Proving Ground was commanded during the year by Col. Rogers Birnie, who is also president of the Ordnance Board, president of the Board for Testing Rifled Cannon, president of the Joint Army and Navy Board on Gun Forgings, and armament officer of the Sandy Hook Armament District.

The ballistic tests of material for service during the year included 59 lots of shot and shell, 10 lots of shrapnel, 52 lots of fuzes, 23 lots of shell tracers, 42 lots of powder, and the proof of 27 guns. The principal new or experimental material under test included guns, carriages, powders, projectiles, fuzes, primers, gun shields, grenades, range finders, and electric firing apparatus for seacoast cannon.

The number of rounds fired from guns of various calibers during the year was 4,073. These firings necessitated the preparation of

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370 reports and firing records, the plotting of 44 targets, and the plotting of charge-velocity and charge-pressure curves for powder records.

Railroad.—The railroad connecting the proving ground with the Central Railroad of New Jersey, at Highland Beach, has been maintained in excellent condition and has proved a source of convenience and economy in the transportation of men and material. The freight shipped over this road during the year amounted to 36,284,863 pounds, requiring a total car movement of 843 cars. The total number of passengers carried during the year was about 158,950.

U. S. S. Ordnance.—The U. S. S. *Ordnance* has steamed between pier No. 12, East River, foot of Wall street, New York City, and Sandy Hook, Sundays and holidays and two periods in dry dock excepted, throughout the year. During the year the boat carried 35,730 passengers and 1,864,914 pounds of freight. The distance traveled was 14,632 nautical miles, and the coal consumption 1,248 long tons.

Heating of buildings.—Practically all of the public buildings at the post are now heated by steam from the central power plant, resulting in material economy in labor and cost of fuel. A record of the coal consumption, mean out of door temperature, and connected radiation surface in the buildings heated by steam has been kept for the fiscal year 1909–10. The consumption of coal has amounted to an average of 2.683 pounds per square foot of radiating surface per week. This is considered a very creditable result.

Jetties.—The jetties for the protection of the east shore line, which were referred to in my last annual report as under construction, were completed last September, and, except for one place where it has been necessary to build an inshore addition, have proved satisfactory in protecting the shore line as far as they extend. It will probably be found necessary to extend the system of jetties about 1,100 yards to protect the shore line where it borders the proof battery and short-range firing space.

Ordnance School of Application.—The student class has comprised eight officers. The duties of instructor have been very capably performed by Maj. Tracy C. Dickson, assisted by Capts. Wilford J. Hawkins and Birchie O. Mahaffey. Major Dickson was relieved from duty at the proving ground near the end of the year for duty in connection with the Panama Canal. The past year has been the most successful one in the history of the school, it being the first one during which a satisfactory number of trained officers have been available for duty as instructors.

In addition to the two lectures given each week by the instructor in the different courses, the class has had the benefit of interesting and instructive lectures from outside the school by Capt. David S. Seagrave, Ordnance Department, and by Messrs. Ward, Rypinski, Clark, and Nesbitt, of the Westinghouse Electric and Manufacturing Company, and Messrs. Chatain, Seede, Haraden, and Kimball, of the General Electric Company. These gentlemen are engineers of high standing in their profession, and their courtesy in voluntarily giving these lectures is highly appreciated by the department.

The statement of the object and scope of this school contained in my last annual report is herewith repeated.

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When officers receive their first detail in the Ordnance Department they are sent to the Sandy Hook Proving Ground, where they engage in the practical work of carrying out the tests and experiments which are necessary in the introduction of new artillery material in the service, and for the acceptance of certain standard material manufactured, and in addition have a course of practical and theoretical work and study, under guidance and with some instruction. When these officers come into the department they have a collegiate knowledge of mechanics, chemistry, and other sciences relating to the engineering work which is part of the duty of the Ordnance Department, but they still have to undergo the training required to make them mechanical engineers in the special branches which are concerned with the design and manufacture of ordnance material of all kinds. They have usually remained at Sandy Hook for one year, during which study and instruction occupy only part of their time, the remainder being devoted to proof work, which is useful and necessary, as distinguished from that which is for their own instruction only.

As experience has shown that the student officers are unable to complete the course of study in one year while required to subordinate their studies to proof and administrative work at the proving ground, and it appearing also that the attempt to perform both classes of work detracts from efficiency in each of them, these duties will be separated with the class entering July, 1910. The class, comprising 9 student officers, will be divided into two sections. The 4 officers comprising the first section will perform proof work, and in addition will take a limited part of the laboratory course relating to the manufacture and test of smokeless powder. The 5 officers comprising the second section will take the course of studies and will be occasionally assigned to proof work for instruction. This contemplates that each officer shall have two years' duty at the proving ground, since a practical knowledge of the proof and experimental work, to be acquired only by actual experience, is most important in the training required for an ordnance officer.

ROCK ISLAND ARSENAL.

This arsenal was commanded during the year by Lieut. Col. F. E. Hobbs.

Receipts and issues.—The receipts and issues of ordnance stores at this arsenal have slightly decreased during the year, the decrease amounting to about 6 per cent in number of shipments and about 7 per cent in total weight. This decrease is from the especially large amount reported for the previous year, and is still much in excess of any preceding year of which there is record. The total number of shipments was about 12,895, the number of packages 111,242, and the total weight 15,169,219 pounds.

Bridges.—The bridges connecting the reservation with the cities of Davenport, Iowa, and Rock Island and Moline, Ill., are in very good condition and have been properly maintained and policed.

During the year the extensive repair to the bridge connecting the arsenal with the city of Davenport has progressed satisfactorily and is now nearly completed. The woodwork of the entire roadway was renewed in the month of September, 1909, with creosoted timber and creosoted wood blocks, the contractors completing the work

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within the twenty-one days' period stipulated in the contract, so that the bridge was closed to traffic but a comparatively short time and with a minimum of inconvenience to the communities which use it. The work was very satisfactorily done and at this date remains in first-class condition. It is believed that with slight repair, material for which is on hand, this roadway will last as long as the metal parts of the bridge. Painting was conducted during the autumn of 1909 but was not entirely finished, due to unsuitable weather conditions. It has been continued during the present calendar year with a small force of men, as there was opportunity, and it is expected that the entire work provided for on this bridge will be completed before the close of the present calendar year. The traffic over this bridge and that connecting the reservation with the city of Rock Island has increased in all branches except in number of teams, where there has been a slight decrease, due no doubt to the fact that the roadway of the bridge was closed for twenty-one days in September, 1909. There has been considerable decrease in the amount of river traffic through the draw, largely due, no doubt, to the fact that the stage of water ever since early spring has been exceedingly low.

Power plant.—The power plant has been maintained in good condition throughout the year, and two additional 500-kilowatt transformers have been installed in order that the lack of power to operate the shops may be avoided in the winter months when high water occurs, due generally to ice gorges. The installation of these transformers will permit the arsenal to draw upon the steam generated electric current of the Moline Water Power Company at such times.

The repair and improvement of the water power to the extent permissible under the appropriation made in May, 1908, has been completed by the stoppage of leaks at the dam of the Moline Water Power Company, the repair and extension of the core wall protecting the south embankment of the water-power pool to prevent leakage or wash, and the remodeling of four of the draft tubes at the arsenal power house. During the months that this work was in progress the water conditions were especially bad, there being continued high water, with none of the low-water conditions which usually obtain.

Water supply and fire protection.—The water-pumping station has worked satisfactorily throughout the year, both under ordinary conditions and those incident to a fire drill. Some minor additions have been made to perfect the material and apparatus installed for fire protection. Special attention is invited to the estimate which is again submitted for the installation of a filtration and sedimentation plant to overcome all the troubles due to the impurity of and sediment in the Mississippi River water, and to make this water entirely fit for all uses, as is done by municipalities and water-works companies generally along its banks.

Artillery storehouse.—The plans and specifications for the erection of an artillery storehouse, appropriation for which became available at the beginning of this fiscal year, have been prepared and approved and bids for the erection of the storehouse will be opened on July 25, 1910. The plans provide for a structure of reenforced concrete and brick, and if the bids are within the amount appropriated, it is believed the work can be completed within the present calendar year.

Additional machinery—Many additional machine tools have been installed in the various shops during the year to improve the plant

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or to meet new conditions arising from the adoption of new models of equipments. These place the plant in very good condition for its normal output of material and no extensive further additions are now contemplated, except those which may be necessary to meet new conditions of manufacture arising, or to replace worn-out parts of the plant.

Arsenal shops.—The machine shop has been engaged during the year on its usual output in connection with the production of mobile artillery carriages and miscellaneous objects. Special attention has been given to the production of vehicles for the heavier calibers and comparatively little work has been done on vehicles for guns of 3-inch caliber, or on the conversion of 3.2-inch material to fit it for use as 3-inch material. Two batteries of 4.7-inch gun vehicles are ready for issue.

In the foundry and forge shop the work has been of the usual character and a large quantity of iron and bronze castings and forgings have been satisfactorily produced. A change in the plant to permit the use of oil, instead of coal, as fuel, under an appropriation available at the beginning of the fiscal year, is in an advanced state of progress, and this improvement, with some addition to the accumulator capacity, has resulted in a material increase of product and, with the increased comfort of workmen because of purer air and less suffocating heat in the shop, has fully justified the installation.

In the equipment shop, where work is confined chiefly to the manufacture of metal parts for personal equipments of the soldier, hardware for horse equipments, and objects of various kinds, there have been produced 998,038 articles. Much experimental work has been done in this shop, including that conducted under the general direction of the infantry equipment board, that connected with the development of a satisfactory method of manufacturing seamless aluminum canteens, and that in connection with the design or modification of pack outfits.

In the carpenter and paint shop the manufactures have been considerably increased, due to the definite adoption of and issue to the service of new targets prescribed by the small-arms firing manual of 1909. This work has been well accomplished, and incident to the manufacture there has been simplification of models with decrease in cost. Special attention has been given to the subject of wheel manufacture and the necessary supply of seasoned hard-wood lumber for that work. Experiments are in progress with a view to the introduction of a modern kiln-drying method, such as appears to give satisfaction to manufacturers generally, which will obviate the necessity for carrying such a large stock of this lumber to permit its proper air seasoning. Lumber of the size required which has been properly air seasoned is not kept on hand by lumber dealers, but must be accumulated by those who wish to use it, and these of course will not dispose of it to others, since it is a valuable asset in their own manufactures. If a satisfactory modern method of kiln drying can be found which will dry the required material more thoroughly and with less checking than by air seasoning, the installation of such a kiln would mean a great saving, and in time of war would be of inestimable value.

A very large amount of work has been done in the harness shop during the year; the number of articles manufactured, or cleaned and

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repaired, or altered, or degreased was 1,225,708. A large amount of new or experimental work was done under the general direction of the infantry equipment board. The results of trial of a few leather-sewing machines having been satisfactory, there are now installed a sufficient number of such machines to permit performance by them of all the leather work to which their use is applicable. This has resulted in increased output and in economy in the work. Some special cloth-sewing machines have been introduced with particular reference to their value in manufacture of the new type of equipment, and also an additional electric cloth-cutting machine, it having been found that one of these machines can do the work of about 6 hand cutters.

Saddlers' and battery mechanics' school.—The third year of the training school for saddlers has been finished and there has been added a branch for training battery mechanics for the field artillery. Improvements to the existing barracks were made at the beginning of the fiscal year so that the number of men detailed for attendance at the school could be considerably increased, and 34 men from troops of cavalry or batteries of field artillery were detailed to attend the saddlers' branch, while 8 men from batteries of field artillery were detailed to attend the battery mechanics' branch. Of these, 29 men have completed the course in the saddlers' branch and 6 in the battery mechanics' branch. The work produced by nearly all these men was very satisfactory and that of 10 men in the saddlers' branch and 1 man in the battery mechanics' branch was specially excellent. The result of the year's work may be summed up in the statement of the fact that there has returned to each of the organizations from which a man was detailed a dependable individual who will be equal to any repair work which he may be called upon to do for that organization.

The value of the work produced by the men has considerably exceeded the cost of their instruction, and has therefore served to balance, to some extent, the expense to the Government of maintaining the men themselves. The school has thus, to a certain extent, been self-supporting.

Armory shops.—The difficulties experienced during the past few years in procuring satisfactory gun-barrel steel and the delays and inconvenience caused by the nonreceipt thereof at the specified times have been very nearly overcome. The specifications for this barrel steel are apparently satisfactory; they have resulted from experiments and tests continuing for nearly three years. Samples of such steel, furnished by manufacturers who have had no previous experience in such manufacture have been tested with a view to having in the field other companies than those now furnishing barrel steel, in order to increase competition and decrease the price, which is thought to be excessive. In most cases the results of these tests have been unsatisfactory. Twenty-nine thousand five hundred and forty-nine magazine rifles, caliber .30, model of 1903, chambered for model of 1906 ammunition, have been assembled during the year, and of these 28,069 have been targeted. In addition there have been manufactured in these shops the usual quantities of spare parts, the necessary bayonets and bayonet scabbard mouth pieces, and some 6,000 rifles or carbines have been dismounted, cleaned, and repaired. Necessary additions or improvements to the plant and new methods of manufac-

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ture have been introduced. On account of the great difficulty experienced in procuring thin armor plate for artillery vehicles, of uniform quality, and the impossibility of procuring bids from manufacturers for furnishing proper plate, experiments in the heat treatment of such plates did not give uniformly entirely satisfactory results and had to be abandoned, orders for the treated armor plate being placed with manufacturers. The interchangeability test made twice a year of parts of the rifle manufactured at this arsenal and at the Springfield Armory have been very satisfactory, and there has been no serious criticism by either establishment of manufactures at the other. Interchangeability is attained within reasonable and practicable limits, not only in manufactures at each establishment, but also between the manufactures at the two establishments.

Proving ground.—The work at the proving ground of the arsenal has been more extensive than usual because of the numerous tests necessary to determine the proper areas of the orifices in the recoil valves and liners of the new mobile artillery carriages, which involve taking records of the velocity of recoil and of the pressure in the recoil cylinders. Eight 3-inch gun carriages manufactured by the American and British Manufacturing Company have been proved and 480 rounds have been fired in the preliminary test of other material, making a total of 560 rounds.

Infantry equipment board.—The board of officers which met in the latter part of April, 1909, for the purpose of making a thorough study of and report on the subject of equipment, carrying devices, and distribution of the load for the infantry soldier, continued in session until the early part of April, 1910, when its final report was submitted to The Adjutant-General of the Army. This report has since been approved in large part, and this arsenal is now engaged in the manufacture of so much of the equipment recommended as pertains to the Ordnance Department, that it may have still further and more extended field test, which may develop desirable modifications.

Cavalry equipment board.—A board of officers appointed to consider and report upon the changes, if any, that should be made in the cavalry horse equipments, in the personal equipments of the cavalry soldier (rifle and pistol excepted), and the cavalry pack, has been in session at this arsenal since the latter part of April, 1910. Articles have been modified and tentative equipments of various kinds have been made for the board's examination, or for preliminary trial by members of the board, or by enlisted men of the Fifteenth Cavalry, who have been ordered to this arsenal for temporary station for this particular purpose.

The total value of the stores under manufacture during the year was $4,734,679.27. The total value of the stores completed was $2,146,206.86. The total disbursement for wages during the year was $1,366,572.39. The average number of employees was 1,568.

SPRINGFIELD ARMORY.

The armory was commanded during the year by Col. Stanhope E. Blunt.

Grounds and buildings.—The usual repairs and improvements of the roadways at the armory, both at the hill shops and the water shops, have been continued during the year, and these roads within

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the arsenal inclosure are now in good condition. Some of the streets, the property of the United States, immediately adjacent to these inclosures, which, however, are used as public streets of the city of Springfield, are in very bad condition, and have been the subject of frequent complaint by the authorities of the city, as well as by many citizens. Estimates covering the cost of necessary repairs to these streets have been submitted.

The armory has the disadvantage of being divided into two parts, in different sections of the city of Springfield, about a mile apart. There is also the disadvantage that no line of railway enters either part. After much study of the subject it has been found possible to lay through a little-used street of Springfield a railroad spur running to that part of the armory known as the "water shops," and, with the consent of the city yet to be obtained, railroad cars can be hauled by electric trucks during the night, from an adjacent railroad depot over the street railway line and a spur track into the other part of the armory, known as the "hill shops." Congress has made a special appropriation for effecting these improvements and they are now in process, with the undoubted result that the cost of teaming all the heavy supplies will be very much reduced.

A 3-story addition to the milling shop at the hill shops has been built to provide suitable toilet accommodations for employees of that shop. At the water shops a room which was vacated by transfer of work to a more favorable location has been converted into a comfort room for employees, affording proper arrangements for those men who, living at a distance from the armory, are unable to return to their homes for their noon meal. Similar arrangements at the hill shops of the armory in connection with a proposed extension which would afford modern facilities for drying stocks have also been planned and await only favorable action upon the estimate of cost submitted.

Machines.—An automatic screw slotting machine purchased in 1909 has been redesigned so as to slot and finish the head of screws automatically. A spring winding machine has been purchased and redesigned so as to be suitable for manufacture of such springs as are made at this armory. This machine will make 35,000 sear springs and 4,500 main springs in one day. With the method of winding springs formerly in use, 3,000 sear springs and 1,250 main springs were considered a good output for one day. Improvements in the brush-making machine referred to in my last annual report have been made, so that the output of a single machine is now 600 bristle brushes per day.

Manufactures.—During the year 46,796 United States rifles, caliber .30, model of 1903, were manufactured and 27,689 cleaned and repaired, chambered and resighted for model of 1906 ammunition; 2,000 gallery practice rifles, caliber .22, model of 1903, were also manufactured, and for use with them 62,000 cartridge holders, 2,000 cleaning rods, 4,000 cleaning brushes, and 3,000 ramrods. There were also manufactured knife bayonets, fencing muskets, fencing bayonets, company repair kits, arm lockers for rifle, arm lockers for revolver, aiming devices, bolos, and hospital corps knives.

In addition a considerable number of sets of spare parts of rifle for issue and storage, spare parts of gallery practice rifles, spare parts of Maxim guns, officers' sabers and scabbards, rifle barrels for drill

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cartridges, and various other articles were also manufactured. All Colt and Gatling guns in store and service in the United States have been cleaned, repaired, rechambered, and resighted for model of 1906 ammunition, including manufacture of sights of new design for the Colt guns. New front and rear sights for all Maxim automatic machine guns in service and store have also been fabricated. Considerable progress has also been made in the preparation of tools, fixtures, dies, etc., for the manufacture of the automatic machine rifle, caliber .30, model of 1909, a new industry at the armory.

During the year many improvements in methods of manufacture have been introduced, resulting in a further reduction of 61 cents in the actual cost of each rifle without reducing the workmen's wage in any case. On the contrary, during the past year, 258 out of a total of 934 employees, or more than 27 per cent, have had their day rating increased, and although the piece price tariffs have not been correspondingly increased, yet as the greater number of the employees have now given up the idea formerly somewhat generally held that the machining or finishing of some certain limited number of components constituted a day's work, it has resulted in a material increase in their day's wage with a consequent decrease in shop expense for the output so obtained. The above reduction in cost of manufacturing the rifle, together with the reduction of 50 cents per rifle reported last year, has resulted in an actual saving of $85,474.25 in the manufacturing cost of rifles for which orders have been given this armory since July 1, 1909. In addition to this large saving on the rifle, corresponding reductions in manufacturing cost have also been made on nearly all other articles fabricated, and this at a time when the price of both labor and material have been advancing—a most creditable showing for the armory.

The system of bore sighting rifles has been continued throughout the year with excellent results. This system has been developed so as to determine the accuracy of a rifle not only for deflection but also for elevation, and by it the accuracy of the battle sight of each rifle is also carefully checked. During the year a new method of straightening barrels has been adopted, the old method of straightening by means of shade lines having been discontinued. By the new method a better barrel is obtained and many of the straightening operations omitted which were formerly considered necessary.

During the year piecework for all operations in the assembling shop has been introduced with most excellent results. This system has also been extended to the rolling of barrels, operations to which it was formerly considered inapplicable. Many other articles formerly made at this armory by day work have also been transferred to piecework with corresponding good results.

Incident to the manufacturing operations several designs of new material have been made at this armory during the year, viz: New model of bracket for telescopic sight of service rifle—design adopted; design of telescopic sight bracket for automatic machine rifle, caliber .30, model of 1909—design adopted; new design of butt plate and stock, so as to permit of carrying of spare parts in stock; movable front sight for Colt's revolver; new design of firing pin for Maxim automatic machine gun, model of 1904—design adopted; design of bracket for Bausch and Lomb telescopic sight; and design of new rear sight for United States rifle, model of 1903, with variable peep

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apertures. Other slight designs for modifications to improve the service rifle were also made. Specifications have been prepared for the automatic machine rifle, caliber .30, model of 1909.

Experimental work.—A number of tests of ammunition for the service rifle, for the revolver, and for the gallery practice rifle, also tests of rifles with different twists, of automatic rifles and automatic pistols, of rear sights, and of Maxim silencers, have been conducted during the year, but without developing any new designs of very material value.

Ten thousand rounds of caliber .22 gallery practice ammunition manufactured by the Peters Cartridge Company, and 10,000 rounds of the Robin Hood Ammunition Company's manufacture, were fired under identical conditions to determine the relative amount of erosion of the bore of the rifle. There appeared to be no material difference between these two manufactures of ammunition, and both guns also were practically uninjured by the firing, the rifling being intact and the reduction of accuracy of the rifle after 10,000 rounds being hardly noticeable. Care was, of course, observed to clean the rifle frequently during the prosecution of this test.

Several tests were made of the Colt's automatic pistol, caliber .45, improved model, with very encouraging results; no jam, missfire, or other difficulty occurring in the operation of the pistol during the test.

A number of Maxim silencers, including those of the latest model, called by the inventor "Model J," have been tested during the year, and the later models have been found to overcome in a great measure such disadvantages as had been thought to exist with former models. Inspection of a number of these silencers being purchased under contract is now in progress.

Issues and receipts.—The number of issues and receipts during the year has been less than for the last fiscal year, and is as follows: Issues: Army, 1,616; navy, 34; militia, 138; and schools and colleges, 42. Receipts: Army, 345; navy, 11; militia, 63; and schools and colleges, 2. The total weight of the stores received is 775,917 pounds, and of the stores shipped, 1,296,587 pounds. The weight of the stores purchased for issue and of material received for use in manufacture, including that of coal used for power and heating officers' quarters, shops, and storehouses, is 17,711,467 pounds. The aggregate of all these stores and material received and issued is 19,683,971 pounds.

Four hundred and forty-seven sales of serviceable and condemned stores, waste material, etc., were made during the year, the total amount received from these sales being $129,822.64.

FRANKFORD ARSENAL.

This arsenal was commanded from July 1 to August 9, 1909, by Maj. W. A. Phillips, and from the latter date to the end of the year by Maj. George Montgomery, the present commanding officer.

Fiscal and property transactions.—The estimated value of the property manufactured at the arsenal during the year amounts to $2,733,657, and the estimated value of the property completed to $2,711,263. The total number of manufacturing orders issued was 1,202. The total number of money vouchers for the year amounted to 3,065, which covered a disbursement of $2,714,581.15. Orders

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covering the purchases of materials and supplies amounted to 3,641 and the extent of the purchases was $1,682,381.62. The number of property vouchers for the year amounted to 5,312. The total amount of property shipped from the arsenal, both for issue to the service and for reworking into materials for manufacturing purposes, was 14,859,288 pounds. The total weight of materials and supplies received at the arsenal, for all purposes, aggregated 36,864,026 pounds.

Buildings and grounds.—The principal improvements to buildings at the arsenal during the year comprise the construction of a new powder magazine, the alteration of a double set of noncommissioned officers' quarters into a set of officers' quarters, and the extension of the lumber shed. A spur railroad track, to increase transportation facilities, has also been constructed.

Administrative operations.—The principal administrative operations consisted in the transfer of the fuze shop to a new building, the transfer of the machine shop and the various shops devoted to the manufacture of instruments, to a new building formerly occupied by the stock department, and the transfer of the stock department to the building vacated by the machine shop, sight shop, and instrument shop. The transfer of the fuze shop to the new building and the corresponding increase of machines will provide for a daily output of 220 21-second combination fuzes, as compared with the former output of 150 fuzes. The facilities for increasing the output of detonating fuzes and primers have been increased to a great extent. The capacity of the arsenal in manufacturing fuzes is now slightly greater than for manufacturing shrapnel. The transfer of the machine shop and other shops devoted to the manufacture of sights, instruments, etc., and their consolidation into one department, has increased the manufacturing facilities in that department approximately 15 per cent.

The supplies pertaining to one of the division field ordnance depots previously described has been stored at the arsenal during the year, and the property in the storehouses has all been rearranged, having in view the classification of the different articles and their economic handling.

Manufacture of small-arms ammunition.—The work during the year involved the manufacture of about 75,000,000 ball cartridges for the service rifle and about 10,000,000 ball cartridges for the service revolvers. In all, over 100,000,000 cartridges of various kinds were manufactured at the arsenal. In addition, 13,000,000 blank cartridges of an earlier model were modified at a limited cost to adapt them to the service rifle.

The accuracy of both rifle and revolver ammunition has shown a steady improvement during the year. The average mean radius from the center of impact for the shots at a target with the rifle ammunition for the month of June, 1910, was only 3.82 inches, as compared with 4.87 inches for the corresponding month of the previous year, and with 7.08 inches for the month of June, 1908. The accuracy of the revolver ammunition is such that the mean radius for an inclosed range of 150 feet is less than 1.1 inches.

A cannelured bullet has been adopted. The bandoleer has been improved, so that it is self-closing and can be used repeatedly without increased expense. A metal packing box has been adopted for small-arms ammunition.

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The machinery for the manufacture of small-arms ammunition has been steadily improved throughout the year by the introduction of labor-saving devices. The costs of small-arms ammunition manufactured at the Frankford Arsenal compared more than favorably with the costs of that procured from private manufacturers. The cost of ball cartridges, caliber .30, per thousand, including all overhead charges, manufactured at the Frankford Arsenal during the past four years, has been as follows: For 1908, $31.96; for 1909, $30.18; for 1910, $29.11; and for 1911, $27.92.

Manufacture of artillery ammunition.—The principal manufactures of artillery ammunition were 22,000 fixed shrapnel for the field gun, 20,000 combination fuzes, 14,000 medium-caliber detonating fuzes, and 19,000 fixed high-explosive shell for the 3-inch (15-pounder) gun.

The accuracy of the 21-second combination fuzes has shown a decided improvement over this ammunition of a year ago. A steady reduction in the cost of artillery ammunition has been made during the year.

The rifle and hand grenades are past the experimental stage, and their manufacture is now being conducted.

Metallic boxes have been adopted for the ammunition for 3-inch field gun and 3-inch (15-pounder) seacoast gun.

Manufacture of instruments.—The principal manufactures of instruments have been azimuth instruments, elevation quadrants, observation telescopes, panoramic sights, and Weldon range finders. Lenses and prisms for the largest service telescopes are now made with a degree of refinement which compares favorably with other establishments. Experimental work is now being conducted at the arsenal which a few years ago could only have been undertaken at a few private establishments.

During the year two types of sextant telemeters were designed and issued to the service for trial. A mortar plotting board, in which all gearing has been eliminated, has been manufactured and favorably reported upon. Star gauges for cannon of large caliber have been designed, giving a larger radial movement than that heretofore obtained.

Manufacture of miscellaneous articles.—The principal manufactures of miscellaneous articles consisted of optical repair kits, subcaliber and drill cartridge kits, sets of tools for loading projectiles, and decapping and cleaning tools for caliber .30 ammunition. Trouble has been experienced in the service due to the bases of the drill cartridges being too weak to withstand service use. These bases conform to the service ammunition, but it has been found necessary to depart from this design in order to obtain greater strength and rigidity.

All paints for projectiles were formerly manufactured at the arsenal, but on account of the prescribed formulas for their manufacture containing expensive ingredients, it was found to be more economical to purchase paints from private manufacturers and dealers. The arsenal has prepared paints from its own formulas which are superior to those procured elsewhere, at a slightly less cost, and these paints have been adopted.

WATERVLIET ARSENAL.

This arsenal was commanded during the year by Lieut. Col. W. W. Gibson, who is also a member of the Board for Testing Rifled Cannon.

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Manufactures.—The amount of work done at the Watervliet Arsenal during the year was considerably less than during the preceding one, the number of employees having decreased from 341 to 249. The reduction in the working force was due to the completion of the work on torpedo tubes and on guns under construction for the Navy Department. The work for that department during the year amounted to 3.8 per cent of the total pay roll of the arsenal, which is 29.2 per cent less than the amount performed for that department during the preceding year.

The shrinkage pit was enlarged during the year to permit the relining of a possible 16-inch 40-caliber gun. The present depth of the pit, 91 feet, is thought to be sufficient to accommodate all guns to be relined or likely to be constructed for many years.

Movement of freight.—The electric road for the movement of freight within the arsenal grounds was operated satisfactorily during the year, at an estimated saving of $1,000, as compared with the former cost of operation by steam. The total tonnage of freight received during the year was 10,235,398 pounds and the total tonnage issued was 2,652,886 pounds.

Water supply.—A 6-inch well, recently drilled on the reservation in an endeavor to secure a supply of pure drinking water, gives a flow of 20 gallons per minute. The results of the analyses so far have not been satisfactory, but the location of the well is such that hope is entertained that pure water may be obtained after further pumping.

Work completed.—The work on guns during the year was equivalent to the completion of three 14-inch guns, models of 1907 M1 and 1909; one 12-inch navy gun; eighteen 12-inch mortars, model of 1908; six 6-inch rapid-fire guns; thirteen 6-inch howitzers; twenty-one 4.7-inch howitzers; seven 4.7-inch siege guns; two 3.8-inch field guns; six 3-inch (15 pounder) rapid-fire guns, and thirty 3-inch field guns.

The value of all material under manufacture during the year was $1,559,606 and the value of the material completed was $464,897.44. The total amount of funds disbursed during the year was $308,673.20.

WATERTOWN ARSENAL.

This arsenal has been commanded during the year by Lieut. Col. C. B. Wheeler, who is also armament officer of the Northern Armament District, and a member of the Board for Testing Rifled Cannon.

The amount of work done during the year was somewhat less than that of the preceding year, the total expenditures having decreased from $926,482.44 to $774,462.13, and the number of employees from 590 to 467. The following have been the principal output of the year, viz: 14-inch disappearing carriages, L. F., model of 1907; 10-inch disappearing carriages, L. F., model of 1901; 15-pounder barbette carriages, model of 1903; sets of parts for the alteration of 12-inch mortar carriages, model of 1896 to model of 1896 M1, and steel racers and top carriages for 12-inch mortar carriages, model of 1896. Work is progressing on the following: 14-inch disappearing carriages, L. F., model of 1907; 12-inch mortar carriages, model of 1908; 6-inch disappearing carriages, L. F., model of 1905 M1; steel top carriages for 12-inch mortar carriages, model of 1896 M1; sets of parts for the alteration of 10-inch disappearing carriages, L. F.,

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model of 1894 to model of 1894 M1; 3.8-inch field carriages, model of 1904, and 6-inch barbette carriages, model of 1910.

Improvement of sanitary conditions.—Work is in progress under the appropriation made at the last session of Congress for the improvement of sanitary conditions and the convenience of workmen. Lavatories and toilets have been completed in the machine shop, and similar facilities, including shower baths and locker rooms, are now under construction for the foundry. A recreation room will be conveniently located near the shop buildings in the old carpenter shop, and will include a reading, writing, and lunch room, with the usual accessories. It is expected that these improvements will be found both convenient and attractive to the workmen and that their comfort will be materially improved.

Rehabilitation of machine tools.—The money appropriated by Congress is being expended gradually and methodically in connection with the change in management. A careful and systematic study of each machine has been made and plans have been prepared for standardizing the machines requiring it, for relocating a number so as to form groups of the same or similar machines, and for rearranging a number of the heavier machine tools so as to avoid the existing necessity of transporting the heaviest pieces of large disappearing carriages from one shop to another to completely machine them. Many of the heavier machine tools will be provided with individual motors, while the smaller tools will preferably be arranged to be electrically driven in groups.

Buildings and grounds.—The old laboratory building on the southerly side of the reservation near the hospital has been moved and located to the east of and adjacent to the pattern shop. It will be fitted up to provide storage facilities for lumber and will contain also an apparatus for kiln-drying it, which has been needed for some time.

The completion of a boulevard by the Metropolitan Park Commission, along the banks of the Charles River on the southerly side of the arsenal grounds, has added much to the appearance of that side of the reservation. A suitable iron fence, in keeping with the surroundings, should be constructed along this boulevard when funds for the purpose are available.

Power plant.—A number of improvements in the power plant have been made during the year and have resulted in a saving of about 500 tons of coal in the last eight months. The most important improvement was the installation of a Harris-Corliss engine and a direct-connected 250-kilowatt generator. At the present time this engine develops sufficient power to operate the entire plant. An additional unit to enable the necessary repairs to be made from time to time will be required.

Smith shop.—The total product amounted to 225,000 pounds. The very unsatisfactory and inadequate character of the equipment of this shop, making it impracticable to manufacture with satisfactory economy many of the forgings required by the department, has been referred to in my annual reports for a number of years.

Machine shop.—While there has been no enlargement of this shop, much has been done in the way of modernizing it and a few new machines were purchased and installed. At the beginning of the year new hard-wood floors were laid in the north wing, adding very

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much to its appearance and reducing the vibration which had been caused by the power transmission. A portion of the second floor of the south wing was removed and the crane ways were extended, so that this entire wing now has the advantage of an electric traveling crane throughout its length.

Foundry.—The total output of this shop was somewhat less than that of the year previous, notwithstanding a gain of 38 per cent in bronze castings and 16 per cent in steel castings. Less difficulty has been had in meeting the specifications and there was a very noticeable decrease in losses due to defects discovered in machining, failures in manufacture, rejection on test, and poor castings. The aggregate losses from all of these causes were: For bronze, 2.4 per cent; for cast iron, 1.7 per cent; and for steel, 2.9 per cent. These percentages compare favorably with the average percentage of losses in foundries throughout the country.

Carpenter and pattern shops.—During the coming year the carpenter shop will be moved to the lower part of the building now occupied by the pattern shop. All machines will be driven by motors, and better facilities for lumber storage will be provided. This will add to the efficiency of the carpenter shop, since its present location is inconvenient and the use of power uneconomical. A further advantage of combining the woodworking departments into one building is expected to be gained by better administration and control.

NEW YORK ARSENAL.

This arsenal was commanded during the year by Col. O. B. Mitcham, who also performs the duties of inspector of ordnance, chief ordnance officer of the Department of the East, and armament officer of the Central Armament District.

The arsenal is mainly a purchasing and shipping agency, without any special facilities for manufacturing or repairing ordnance stores, but, from its position near New York City, is considered of great value as a place of storage for arms and equipments of troops and as a depot for equipping troops, especially for military expeditions in time of war.

During the year 27,510 packages were received, aggregating 2,504,619 pounds. The number of issues was 2,296, consisting of 20,339 packages, the aggregate weight of which was 1,967,385 pounds.

AUGUSTA ARSENAL.

This arsenal was commanded by Maj. J. W. Joyes from July 1, 1909, to February 17, 1910, when that officer was relieved. Temporary command was exercised by the assistant, Capt. Adam F. Casad, until May 15, 1910, on which date permanent command was assumed by Maj. George W. Burr, the present commanding officer. The commanding officer of this arsenal is also armament officer of the Southern Armament District and chief ordnance officer of the Department of the Gulf.

This arsenal is a depot of supply for the Department of the Gulf and for the organized militia and the educational institutions of the South Atlantic and Gulf States, and has a manufacturing plant

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intended primarily for the alteration and repair of seacoast armament. As such work is necessarily of an intermittent nature, the plant is capable of and has in hand sufficient manufactures of a general nature to maintain an efficient permanent personnel. This arsenal is also the depot of storage and supply of ordnance supply district No. 5, but owing to the limited storage capacity only a portion of the necessary reserve is on hand. One of the division field ordnance depots, previously described, is stored at this arsenal.

During the year the increase of plant provided for by the $50,000 appropriated in 1905 and subsequent appropriations was completed by the installation of oil-burning forges and furnaces. The increased plant is now well equipped for general ordnance work, and includes an iron and brass foundry, smith shop, machine shop, carpenter shop, rubber-tiring plant, and a department for cleaning and repairing equipments. The total number of employees on the arsenal pay roll on June 30, 1910, was 122.

Work upon the armament in the Southern Armament District has progressed satisfactorily during the year. There are at present employed on armament work 1 foreman, 19 machinists, and 4 laborers, besides 13 enlisted men detailed on extra duty as helpers for machinists. The alteration of 12-inch mortar carriages, model of 1896 to model of 1896 MI, is progressing rapidly; 24 have been completed. The current repairs and alterations of all armament are kept well up to date. The provision of quarters for ordnance machinists at isolated posts in this district is a necessity, and it is hoped that a satisfactory solution of this question will be reached at an early date.

The arsenal grounds and buildings have been kept in good repair, and a number of minor improvements have been made. A number of old and worthless trees have been removed and many young ones planted. During the year a new lavatory has been constructed for the use of the workmen. A 100-gallon chemical fire engine has been purchased, and hand fire extinguishers placed in all shops and principal buildings.

The amount disbursed during the year was $90,482.28. The value of the articles fabricated and accounted for was $5,671.

BENICIA ARSENAL.

This arsenal was commanded during the year by Lieut. Col. J. W. Benét, who is also chief ordnance officer of the Department of California and armament officer of the Western Armament District.

The important items of work done in the shops were: Grooving for base covers and preparing for fuzes A. P. and D. P. projectiles; making up powder charges and preparing fixed ammunition; manufacturing targets and target material for seacoast and field artillery practice and small-arms practice; repairing and maintaining armament; and retinning tin equipments. Small lots of leather equipments were manufactured. All 12-inch mortar carriages, model of 1896, on the Pacific coast have now been converted to the model of 1896 MI.

A fuel oil burning plant for the blacksmith shop, comprising forges, furnaces, and a crucible tilting furnace for brass, was contracted for, and work on its installation has begun. A 200-pound hammer and anvils have been purchased for this shop.

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The appropriation of $39,000 for a loading house for filling projectiles with high explosives and a storehouse for projectiles has become available, and it is hoped to have the buildings completed before the end of the fiscal year.

The disbursements for the year, exclusive of sales and deposits, were $123,384.51. The number of receipts and issues of ordnance stores during the year was 2,580. The stores received on quartermaster's bills of lading amounted to 2,710,922 pounds, and the stores issued amounted to 3,426,334 pounds.

SAN ANTONIO ARSENAL.

This arsenal has been commanded during the year by Lieut. Col. Charles H. Clark, who is also chief ordnance officer, Department of Texas, and in charge of a field artillery district.

The principal operations have been confined to the supply of the regular troops serving in the department, the supply of the organized militia in the Southwest, and the maintenance of regular and militia batteries in the district.

The arsenal grounds and buildings have been maintained and improved to the extent permitted by available funds.

PICATINNY ARSENAL.

This arsenal is commanded by Maj. Odus C. Horney. The Army Powder Factory is located at this arsenal, which is also a depot for the storage, preparation, and issue of powder, ammunition, and high explosives. Approximately 370,000 pounds of cannon powder and 12,500 pounds of caliber .30 small-arms powder have been manufactured during the year.

The work of enlarging the powder factory, to provide for a capacity of 9,000 pounds per day, is progressing satisfactorily. The volume of work in the chemical laboratory has been very large. In addition to the regular routine work, a considerable amount of investigative and experimental work has been carried on.

The number of employees at this arsenal on June 30, 1910, was 324. The disbursements for the fiscal year amounted to $372,211.37. The number of receipts and issues of ordnance stores during the year was 837, involving the handling of something more than 6,000,000 pounds of freight.

MANILA ORDNANCE DEPOT.

The depot was commanded by Maj. George W. Burr, until December 17, 1909, when that officer was relieved. Temporary command was exercised by the assistant, Maj. Thales L. Ames, until April 2, 1910, on which date he was in turn relieved by the permanent commanding officer, Maj. J. W. Joyes, who is still in command. The officer commanding this depot is also chief ordnance officer of the Philippines Division and armament officer of the Philippines Armament District.

Employees.—The authorized clerical force numbers 13; 18 Americans are employed as foremen and leading men in shops and storehouses. The native employees number approximately 170. There

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is in addition an enlisted force of 50 men employed in the shops, storehouses, and on guard duty.

Volume of business.—The returns examining division received and made preliminary examination of 1,673 ordnance property returns and, in connection with that work alone, sent 2,658 letters and 1,348 indorsements—these apart from the general office and depot business. A further measure of the business transacted is found in the following record: Number of vouchers for stores issued, 2,962; number of vouchers for stores received, 1,498; number of vouchers covering sales of stores, 1,480; weight of stores received, 3,300 gross tons; weight of stores issued, 1,800 gross tons; value of stores under manufacture, $42,204, of which stores to the value of $33,764 were completed during the year.

Disbursements.—The total amount of funds disbursed, transferred, etc., at the depot during the fiscal year was $125,969.98. The sales of ordnance and ordnance stores during the year to officers, the insular government, and other departments, amounted to $30,540.61.

Work at the depot.—This depot is maintained for supplying ordnance and ordnance stores to the troops serving in the Philippines Division, and its work consisted in issuing such stores; in manufacturing such as are not on hand and are urgently needed; in receiving, repairing, and repacking unserviceable stores turned in; in the care and preservation of stores on hand; and in the installation, maintenance, and supply of the insular seacoast fortifications. For this purpose the depot is provided with harness, carpenter, machine, smith, tin, paint, and plating shops, a small foundry for brass and iron work, and an armory fitted for the repair of small arms and appurtenances.

The work of the past year has included the repairing of a large quantity of material turned in for that purpose and the manufacture of targets and target materials for small-arms, mobile-artillery, and coast-artillery target practice and miscellaneous stores for sale or issue. The installation and care of the seacoast armament have added largely to the labor and responsibility of the depot.

Depot buildings.—Necessary repairs to the depot buildings have been made and the shop plants have been maintained in an efficient state. During the year the conversion of storehouse No. 2 into a set of officers' quarters has been completed. An additional set of quarters for the third officer on duty at the depot is very desirable and an estimate for the purpose has been submitted.

UPKEEP OF ARSENALS.

The proper upkeep of manufacturing plants requires continual replacements of machines and other facilities which have either been worn out or have become obsolete, and in addition there are continually appearing new and better ways for doing things which the plant is occupied with which, in the interest of economy, must be employed. Certain of the appropriations for procuring the material supplied by the Ordnance Department carry authorization for expenditures for the means of manufacture, and in addition there is a general fund for the repair and improvement of arsenals, applicable both to buildings and machinery. From these two sources it has been possible to make all the ordinary repairs, and to provide new facilities as the necessity

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for doing so became manifest, and all the arsenals of the department are now in a good state of repair. Certain large improvements and changes, such as the erection of new shops, and the installation of new power plants, are, from time to time, made the subject of special estimates and appropriations.

THE ORDNANCE BOARD.

The membership of the board on June 30, 1910, was as follows: Col. Rogers Birnie, Ordnance Department; Col. S. W. Roessler, Corps of Engineers; Lieut. Col. E. B. Babbitt, Ordnance Department; and Capt. H. J. Hatch, Coast Artillery Corps. Maj. Tracy C. Dickson, Ordnance Department, was a member of the board until May 24, 1910, on which date he was relieved on account of his detail for duty with the Isthmian Canal Commission. Maj. Jay E. Hoffer, Ordnance Department, was, on July 7, 1910, assigned in place of Major Dickson.

This board is a permanent experimental body, most of the members of which have additional duties to those as members. The duty of the board is to test new material supplied by the Ordnance Department which is intended for the use of the artillery service; to prove guns, projectiles, powder, and other material, which must be subjected to this process before acceptance; to examine and report upon designs which are proposed for new material, or for the improvement of that which is in existence; to submit opinions, when called upon, concerning any new processes or other projects for the improvement of material supplied for the artillery service; to outline experiments intended to elucidate any points upon which information may be desired and to prepare programmes for carrying them out. During the year which is covered by this report the board submitted 22 reports relating to guns and carriages, 8 relating to powders and explosives, 7 relating to fuzes, 7 relating to projectiles, and 39 relating to sights, fire-control instruments, and miscellaneous objects.

Very respectfully,

WILLIAM CROZIER,
Brigadier General, Chief of Ordnance.

The SECRETARY OF WAR.

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REPORT OF THE CHIEF SIGNAL OFFICER.

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REPORT OF THE CHIEF SIGNAL OFFICER.

WAR DEPARTMENT,
OFFICE OF THE CHIEF SIGNAL OFFICER,
Washington, September 1, 1910.

SIR: I have the honor to submit the following report of the operations of the Signal Corps of the Army for the fiscal year ended June 30, 1910:

CONTENTS.

I. Signal troops required by the Field Service Regulations of 1910.
II. Telegraph and cable systems of Alaska, the Philippine Islands, and operations in the United States.
III. Standard fire-control installations for coast defense.
IV. Wireless telegraphy.
V. Military aeronautics.

I. SIGNAL TROOPS REQUIRED BY THE FIELD SERVICE REGULATIONS OF 1910.

The Field Service Regulations, United States Army, 1910, provide as follows:

Paragraph 20. Chief Signal Officer: The chief signal officer of an army or smaller command exercises general supervision over the signal service connected therewith. He is charged with the construction, operation, and maintenance of the signal-service lines of information, and commands the signal troops not specially detached. He keeps himself thoroughly informed of the plans of the commander and of the positions of the enemy, and, under the supervision of the chief of staff, establishes such signal lines and stations as will contribute most effectively to the success of the operations. He submits reports of operations to the chief of staff and forwards copies thereof to the chief signal officer at Washington.

Communications transmitted by the signal service are always confidential, and will not be revealed except to those entitled to receive or examine them.

Paragraph 32. The Signal Corps consists of the chief signal officer and the commissioned and enlisted personnel authorized by law for that corps.

For duty in the field, signal troops are organized as follows:

For each division, including cavalry divisions, one field battalion.

For each field army, one aero-wireless battalion.

For an army, the necessary signal troops to maintain lines of information between army headquarters and the separate units.

For the line of communications, the necessary signal troops to maintain lines of information between the army and the home country and along the line of communications.

The field battalions maintain lines of information within the division and between the division and the headquarters of the field army of which the division forms a part. All signal troops are individually mounted or ride on vehicles.

Company (field):
- 1 captain.
- 3 first lieutenants.
- 2 master signal electricians.
- 1 first sergeant.
- 1 supply sergeant.
- 1 mess sergeant.
- 1 stable sergeant.
- 6 sergeants, first class.
- 14 sergeants.
- 18 corporals.
- 2 cooks.
- 1 farrier.

Company (field)—Continued.
- 1 saddler.
- 3 mechanics (1 as horseshoer).
- 2 wagoners.
- 2 trumpeters.
- 45 privates, first class and privates (5 as drivers).
- 4 wire carts (4-horse).
- 1 instrument wagon (4-mule).
- 6 pack mules.
- 2 field wagons.

4 officers (mounted).
100 enlisted men (72 mounted).

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Battalion (field):
- 1 major.
- 1 adjutant (captain).
- 1 supply officer (captain).
- 1 sergeant-major (mounted).
- 1 supply sergeant (mounted).
- 1 color sergeant (mounted).
- 1 wagoner.
- 3 privates (as orderlies, mounted).
- 1 field wagon.
- 2 field companies.
- 11 officers (mounted).

Battalion (field)—Continued.
- 207 enlisted men (150 mounted).
- 8 wire carts.
- 2 instrument wagons.
- 12 pack mules.
- 5 field wagons (sec. 34).

Attached sanitary troops:
- 2 captains and lieutenants.
- 2 sergeants and corporals.
- 4 privates, first class and privates.
- 2 officers (mounted).
- 6 enlisted men (mounted).

The sergeant-majors, supply sergeants, first sergeants, color sergeants, mess sergeants, and stable sergeants called for in the above organizations are detailed to act in those positions from signal sergeants, first class, or sergeants, in such manner as the chief signal officer may provide. The farriers, saddlers, mechanics, wagoners, and trumpeters are similarly detailed from the corporals, privates, first class, and privates.

As to personnel the organization of aero companies and of wireless companies, and of aero-wireless battalions, is the same as that of field companies and battalions, respectively.

The transportation of wireless companies is the same as that of field companies. The transportation required for an aero company has not yet been determined.

SIGNAL TROOPS FOR THE MOBILE ARMY.

In the matter of providing sufficient signal troops for serving with the mobile army, the most important consideration is the recognition of the fact that the number of tactical messages and telegrams relating to supply and administration to and from any unit will be practically the same no matter whether the unit is recruited to maximum war strength or is on a reduced peace basis. Therefore, the telegraph and telephone service must be based on the number of organizations or units rather than on the total enlisted strength of the mobile army.

Referring again to paragraph 32, Field Service Regulations, 1910, it will be noted that "For duty in the field signal troops are organized as follows:

For each division, including cavalry divisions, one field battalion.

For each field army, one aero-wireless battalion.

For an army, the necessary signal troops to maintain lines of information between army headquarters and the separate units.

For the line of communications, the necessary signal troops to maintain lines of information between the army and the home country and along the line of communications.

At the present time there are no field battalions, no aero-wireless battalions, and no signal corps organizations for handling signal corps work for an army or for the line of communications. There are five field companies stationed as follows:

Company A, Fort Leavenworth, Kans.
Company D, Fort Omaha, Nebr.
Company I, Fort D. A. Russell, Wyo.
Company E, Presidio of San Francisco, Cal.
Company L, Fort William McKinley, P. I.

It will be noted that these separate companies do not conform to the requirements of the Field Service Regulations, which prescribe battalions; but up to the present time it has been impracti-

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cable to form battalions from these companies on account of the number of companies available and the necessity for stationing them in different parts of the country.

During the past summer each of the four field companies in the United States attended two camps of instruction. This involved a considerable expense for the transportation of these companies, and in spite of every effort it was impossible to furnish a signal company for one of the most important of the camps of instruction, namely, the camp at Gettysburg, Pa. These companies are too small to perform in a satisfactory manner the work which is often required of them at the camps of instruction.

The inadvisability of waiting until an emergency is at hand before taking any steps to properly organize, equip, and train organizations of a highly technical character is too well recognized to require any argument.

Proposed legislation for increasing the efficiency of the Signal Corps of the Army, which received the approval of the Secretary of War, the Lieutenant-General of the Army, the Chief of Staff of the Army, and the Commandant of the Army Service Schools, was introduced in the second session of the Sixtieth Congress. On January 26, 1909, the Committee on Military Affairs of the House of Representatives submitted to the House the bill as amended by said committee with the following remarks:

> The committee also submits some extracts from reports from the chief umpire on summer maneuvers of 1908, and believes that no more important legislation for the effective organization of the army can possibly be enacted than this increase of the Signal Corps.

The failure to enact legislation for increasing the efficiency of the Signal Corps has resulted in bringing to a complete standstill any further development of signal corps work.

It is believed that the signal corps bill, which is now before Congress, embodies the necessary features for providing a minimum number of organizations referred to above.

The Chief Signal Officer of the Army closes this part of his report with an earnest appeal for necessary legislative action to enable this department to carry out the duties prescribed for it by existing laws and the present Field Service Regulations.

II. TELEGRAPH AND CABLE SYSTEMS OF ALASKA AND THE PHILIPPINE ISLANDS, AND OPERATIONS IN THE UNITED STATES.

ALASKA.

The Washington-Alaska military cable and telegraph system was satisfactorily maintained and operated through the year.

The system at this date comprises 2,629.35 miles of submarine cable, 367 miles of double and 996 miles of single land line, and 934 miles of wireless.

The lines from Valdez to Fort Egbert and to Paxson comprise the first section, and are supervised by the signal officer at Valdez. Those from Paxson to Glen and from Fort Egbert to Boundary, together with the wireless stations at Fairbanks, Circle, and Fort Egbert, comprise the second section and are supervised by the signal officer at Fair-

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banks; those from Glen to Kaltag and the wireless station at Fort Gibbon comprise the third section, and are supervised by the signal officer at Fort Gibbon; those west of Kaltag and the wireless stations at St. Michael and Nome comprise the fourth section, and are supervised by the officer in charge at St. Michael.

Below is given a list of stations and distances corrected to date.

STATIONS AND DISTANCES.

	Intermediate.	Total.
LAND LINES.		
St. Michael-Valdez.	*Miles.*	*Miles.*
St. Michael	0	0
Golsova	35	35
Unalakleet	30	65
Old Woman	50	115
Kaltag	45	160
Nulato	40	200
Koyukuk	30	230
Louden	50	280
Melozi	35	315
Kokrines	38	353
Birches	40	393
Fort Gibbon	55	448
Rapids	24	472
Rampart	23	495
Glen	35	530
Hot Springs	21	551
Tolovana	37	588
Minto	39	627
Nenana	35	662
Chena	29	691
Fairbanks	10	701
Salcha	37	738
Delta	29	767
Richardson	2	769
McCarthy	20	789
Donnely	36	825
McCallum	37	862
Paxson	18	880
Hogan	30	910
Gulkana	30	940
Copper Center	25	965
Tonsina	25	990
Telkhell	24	1,014
Saina	24	1,038
Wortmans	12	1,050
Valdez	18	1,068
Nome-Fort Davis.		
Nome	0	1,068
Fort Davis	4	1,072
Gulkana-Fort Egbert.		
Gulkana	0	1,072
Chistochina	40	1,112
Mentasta	46	1,158
Tanana Crossing	51	1,209
Ketchumstock	55	1,264
Fort Egbert	87	1,351
Boundary (no station)	12	1,363

	Intermediate.	Total.
CABLES.		
Seattle-Seward.	*Miles.*	*Miles.*
Seattle	0	0
Sitka	1,085	1,085
Valdez	599	1,684
Fort Liscum	4	1,688
Seward	196	1,884
Montague Island-Cordova-Cape Whitshed	68	1,952
Sitka-Skagway.		
Sitka	0	1,952
Cape Fanshaw (no station)	211	2,163
Juneau	98	2,261
Haines Mission	106	2,370
Skagway	18	2,385
Juneau-Douglas	3	2,388
Cape Fanshaw-Ketchikan.		
Cape Fanshaw (no station)	0	2,388
Wrangell	74	2,462
Ketchikan	113	2,575
Lawton-Worden.		
Fort Lawton	0	2,575
Fort Worden	42	2,617
Ward-Lawton.		
Fort Ward	0	2,617
Fort Lawton	12	2,629
Sitka-Japonski Island.		
Sitka	0	2,629
Japonski Island	.35	2,629
WIRELESS.		
Egbert-Circle		107
Circle-Fairbanks		130
Fairbanks-Gibbon		130
Gibbon-Nome		330
Nome-St. Michael		127
St. Michael-Kotlik		80
Petersburg-Wrangell		30
Total		934

RECAPITULATION.

	Miles.
Land lines (double wire)	367
Land lines (single wire)	996
Wireless	934
Cables	2,629.35
	4,926.35

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During the year "this line" receipts aggregated $188,109.36. The "other line" receipts aggregated $18,974.55. Official messages to the value of $174,005 were transmitted. Telegraphic money transfers to the value of $57,764.40 were handled. Tolls accruing from this service which are accounted for as "this line" receipts aggregated $716. A reserve supply of 150 miles of submarine cable was maintained during the year at Tacoma for use in case of break or damage to the cable system. The second telegraph wire between Gulkana and Fairbanks was completed on October 8, 1909. During the year plans were perfected and work commenced on rebuilding line between Hot Springs and Chena. Telegraph offices were opened at the following places: Beaver Dam, Douglas, Nome (city office replaced), Petersburg (wireless), and Wrangell (wireless). The following offices were closed: Hadley, Saina, and Safety (wireless).

EXTENSIONS AND BETTERMENTS.

Cable.—In connection with the repair and maintenance of the Alaskan cable system, the cable ship *Burnside* made soundings in the vicinity of Sitka with a view to relaying a section of the cable which it was believed was then exposed to injury on a very rocky bottom. Upon the completion of the survey, 25 miles of cable were picked up and relaid over the newly sounded route. (See also Cable ships, p. 14, work of the *Burnside*.)

Land lines.—The construction of a second telegraph wire between Fairbanks and Valdez, made necessary by the constantly increasing telegraph business over this line, was completed October 8, 1909. Construction work is reported as most excellent. The work was performed partly by civilians and partly by enlisted men of the line and the Signal Corps, under the supervision of officers of the Signal Corps and infantry. One of the two wires now between Valdez and Fairbanks is used exclusively for business between those two points, and sometimes during the winter communication is maintained in connection with this wire from Valdez and St. Michael without relay. During the year work has been in progress on the line between Hot Springs and Chena, where a better position of the line is needed. It is expected that this line, when rebuilt, will greatly increase the efficiency of the service. During the year six new relief cabins have been acquired and numerous repairs made on various sections on account of damages wrought by flood and forest fires, the latter being almost a constant menace to the telegraph communication in the interior of Alaska.

Wireless.—Work on the Alaskan wireless telegraph system has been directed chiefly to the betterment of existing stations rather than to extensive new construction. The power of the stations at Fairbanks and Fort Egbert is being increased from 3 to 5 kilowatt capacity. The apparatus is on hand, but has not as yet been installed. This increase in power is being made to insure direct communication between these stations at all times.

A 1-kilowatt station is ready for operation at Kotlik, at the mouth of the Yukon River, and will be placed in commission within a short time. This station is about 80 miles from Fort St. Michael, with which station it is intended to communicate. This station will also exchange messages with vessels at sea en route to Norton Sound.

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The operation of the wireless telegraph stations in Alaska has been of such a character as to warrant consideration being given to the abandonment of a portion of the land telegraph lines over the routes now covered by wireless, thus relying on this as the sole means of communication instead of as an auxiliary to the land lines as originally intended.

The building for the wireless station at Circle was completed on September 11, 1909, and the office equipment installed.

DETAIL STATEMENT OF EXPENDITURES UNDER ARMY APPROPRIATION ACT APPROVED MAY 11, 1908.

Unexpended balance		$2,004.38
1. Reimbursement of officers for traveling expenses in excess of mileage allowed by law		243.67
Unexpended balance		1,760.71
Appropriation		100,000.00
1. For all wireless telegraph installations	$8,655.46	
2. Rebuilding and betterments to the military telegraph line between Nome and Paxson	12,758.75	
3. Rebuilding and betterments to the military telegraph lines between Valdez and Paxson, Gulkana, and Fort Egbert	13,400.00	
4. Extensions and betterments to the Alaskan cable system	10,000.78	
Total expenditures		44,814.99
Unexpended balance		55,185.01

The army appropriation act approved March 23, 1910, provides that of the receipts of the Washington-Alaska military cable and telegraph system that have been covered into the Treasury of the United States the sum of $75,000 is appropriated and made available for defraying the cost of such extensions and betterments of the system as may be approved by the Secretary of War.

TELEGRAPH RESERVATIONS.

During the fiscal year there have been reserved and set apart for the use of the Signal Corps in the operation and maintenance of the United States military telegraph and cable lines in Alaska the following:

By executive order dated September 27, 1909:

Beginning at a stake at the top of the bank of a slough of the Tanana River, said stake being located on the western boundary line of the homestead of J. M. Hall, and marked "Stake No. 1;" thence in a westerly direction, following the meanderings of the bank of the above-mentioned slough, to a stake marked "Stake No. 2," bearing N. 80° 00′ W., and distant 1,065 feet, more or less, from said stake No. 1; thence S. 10° 00′ W. 200 feet to a stake marked "Stake No. 3;" thence S. 80° 00′ E., 1,065 feet, more or less, to a stake marked "Stake No. 4," and located on the western boundary line of the homestead of J. M. Hall; thence N. 10° 00′ E. 200 feet, following the western boundary line of the said homestead, to Stake No. 1, the point of beginning. Area, 6.1 acres, more or less. The bearings are true.

All that part of the reservation not comprised within the limits above described is hereby placed under the control of the Secretary of the Interior, under the act of July 5, 1884 (23 Stat. L., 103), for disposition as provided therein, or as may be otherwise provided by law. (G. O., 208, W. D., 1909.)

By executive orders of April 26 and May 13, 1910:

It is hereby ordered that the following-described tract of public land, situate at Beaver Dam, Alaska, be reserved from sale or other disposition, subject to private rights, if any there be, and set apart for the use of the Signal Corps, United States Army, in the operation and maintenance of military telegraph lines in Alaska, viz:

Beginning at a point 300 feet due north of the northwest corner of the United States Military Telegraph Office Building; thence due east 3,960 feet; thence due south

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5,280 feet; thence due west 5,280 feet; thence due north 5,280 feet; thence due east 1,320 feet, to the point of beginning; area, 1 square mile. Latitude, 60° 20′; longitude, 145° 20′.

It is hereby ordered that the executive order of April 26, 1910, reserving a tract of public land, situate at Beaver Dam, Alaska, for the use of the Signal Corps, United States Army, in the operation and maintenance of military telegraph lines in Alaska, be, and the same is hereby, amended so as to give the latitude and longitude of said reserved tract, respectively, as follows: Latitude, 61° 13′; longitude, 145° 28′. (G. O., 103, W. D., 1910.)

CONDITION OF ENLISTED MEN.

The enlisted men of the Signal Corps and the line of the army have continued to render as a whole the same faithful and satisfactory service mentioned in my last annual report, and have met without complaint the hardships and dangers incident to service in such an extreme climate.

The average number of Signal Corps men on duty in Alaska during the year was 213, and an average of 55 infantrymen was on duty with the Signal Corps as line and repairmen and with construction and reconstruction parties. Only one death occurred during the year.

PHILIPPINE ISLANDS.

The operation of the military telegraph lines, cables, and wireless stations in the Philippine Islands has been under the direction of the chief signal officer, Philippines Division.

TELEGRAPH AND CABLE SYSTEM.

The military telegraph system operated and maintained during the year comprises 34 miles of line and 12 offices.

Three fire-control cables were laid during 1909, in connection with the defense of Manila Bay, aggregating 10.236 miles.

The cable between Legaspi and Liguan (government coal mines), 14.538 miles, was turned over to the insular government June 18, 1910. The value of this cable and all property transferred to the insular government during the year was $6,145.79.

The cable ship *Liscum* was engaged in the repair of the insular government cables eight days and seven hours; value of service, $2,412.90. Under authority of the Secretary of War the cable machinery and cable supplies aboard the *Liscum* were removed during November, 1909, and loaned to the insular government.

TELEPHONE SYSTEMS.

The following post telephone systems were maintained by the Signal Corps: In the Department of Luzon—Camp Wallace, Camp John Hay, Camp Gregg, Camp Stotsenburg, Camp McGrath, Camp Wilhelm, Camp Eldridge, Regan Barracks, and Fort William McKinley. In the Department of the Visayas—City of Iloilo, Camp Connell, Camp Downes, Camp Jossman, and Warwick Barracks. In the Department of Mindanao—Augur Barracks, Camp Keithley, Camp Overton, Ludlow Barracks, Pettit Barracks, and headquarters Department of Mindanao and Torey Barracks. These twenty systems were equipped with 473 telephones. There were four long-distance systems with 106 miles of line.

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WIRELESS TELEGRAPHY.

The installation of wireless apparatus for the insular government at Malabang was completed November 17, 1909.

The Signal Corps has to date erected the following army wireless stations in the division: Manila, 1-kilowatt; Fort McMinley, ¾-kilowatt; Fort Mills, ⅛-kilowatt; Fort Frank, ⅛-kilowatt; Fort Drum, ⅛-kilowatt. Construction has commenced on a 10-kilowatt station at Fort Mills, and a 1-kilowatt station at Fort Wint.

ENLISTED MEN.

The enlisted strength of the corps in the Philippines at the end of the fiscal year aggregated 147 men. Twenty-one have been discharged in the islands, 11 by expiration of term of service and 10 to accept service with the insular government. One died and 4 were transferred to the line of the army. Fifty-eight men were returned to the United States during the year, 45 for duty, 6 for medical treatment, 6 for discharge, and 1 for retirement.

Thirteen men reenlisted in the corps, 29 were obtained by transfer from the line, and 52 by transfer from the United States.

Of the 147 men present, 37 have completed two or more years' continuous service in the islands.

UNITED STATES.

The operations of the Signal Corps in the United States during the past fiscal year cover the management of the military telegraph lines, the establishment of the post telephone systems, the supplying of signal equipment to the army and the organized militia, the installation of fire-control and fire-direction systems for coast defense, military aeronautics, the provision of fire-control and fire-direction systems for field artillery, enlisting and training of recruits in visual, electrical, and telephone work, electrical and other experimental work, and active and suitable preparations with a view to placing the corps in a state of efficiency and preparedness for war or other emergency.

SIGNAL-CORPS POSTS.

During the year posts at Fort Omaha, Nebr., and Fort Wood, N.Y., were garrisoned exclusively by the Signal Corps. The garrison at Fort Omaha consists of Companies B, D, and H, while the post at Fort Wood is garrisoned by Company G, Signal Corps. At both these posts are maintained schools for the instruction and training of the enlisted men of the Signal Corps. Both posts are equipped with 3-kilowatt wireless sets, and at each place special classes have been conducted during the year for the instruction of enlisted men in wireless telegraphy, and trained operators from these posts have been sent out to take charge of various wireless stations on army transports and in Alaska and the United States.

GENERAL DEPOTS OF SUPPLIES.

The three general supply depots of the Signal Corps are located at Fort Wood, N. Y., Fort Omaha, Nebr., and Fort Mason, Cal. These three depots each include a general stock of signal-service equipment. Fort Wood and Fort Mason also include fire-control supplies. A limited supply of signal-service equipment intended for use in the

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Alaskan telegraph and wireless system is maintained at Seattle, Wash. Steps have been taken during the year to increase the storage facilities at the depot at Fort Wood with a view toward affording better attention to the large supply of cable constantly kept at that depot.

THE ARMY SIGNAL SCHOOL.

The wisdom of the establishment of the Army Signal School in 1905 has already been thoroughly confirmed by the very satisfactory results attained. Located at Fort Leavenworth, Kans., where is also the Army School of the Line, the Army Staff College, the Army Engineering School, and the Army Medical School, it enables the Signal Corps to most advantageously study, determine, and test the duties which would be required of it in campaign in conjunction with the other arms of the service.

Company A, Signal Corps, is stationed at Fort Leavenworth, is assigned to duty under the commandant of the army service schools, and is used exclusively in connection with the field work of the signal school proper and also the Army School of the Line and the Army Staff College.

A new barracks building, stable and wagon shed for one company has recently been completed, and is located in the school section of the post, so that this company and its equipment may be readily available for the almost constant use which is required of it in connection with one or another of the service schools.

It is believed that it is no exaggeration to state that the influence of the Army Signal School during the past five years in developing field signal service for troops in campaign, both from the standpoint of the technical use of this service by the Signal Corps itself and, what is equally important, the determining to what extent the means of communications devised by the Signal Corps can be relied upon in war by the line of the army, has been demonstrated in a manner which no other plan could have hoped for in so short a time.

Equipment.—During the past year the equipment of the Signal School has been enlarged and improved. In connection with the laboratory a 10-kilowatt motor generator, for illustrating various voltages and phases in alternating current work, has been purchased. A modern projector for opaque objects and lantern slides has been procured for the laboratory, and many smaller instruments for electrical measurement have been furnished. The laboratory is now being completely overhauled and modernized.

A 3-kilowatt wireless station has been put in operation in the past year. The station is located in a neat building on Engineer Hill and the aerial system is supported by a 200-foot structural tower. This station and the one at Fort Omaha, 160 miles distant, work together constantly.

School for militia signal officers.—In compliance with orders of the War Department a number of signal officers of the National Guard were ordered to Fort Leavenworth, Kans., during the month of June to receive special instruction in the field duties of signal troops in connection with Company A, Signal Corps. Although this idea is a new one, yet the results attained in this first attempt indicate that this is a most efficient way of assisting the organized militia in the development of their signal service. In this connection it became evident from this year's experience that an officer should be detailed

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exclusively during the period of the school to give his entire attention to the instruction of the officers sent, which was not possible during the present year due to the scarcity of officers of the Signal Corps.

Technical conference.—General Orders No. 133 prescribe that there should be conducted in connection with the Army Signal School technical conferences for the report, criticism, and discussion of papers pertaining to field engineering and signal engineering as applied to the duties of the Signal Corps. The inception of this idea in the curriculum of the Signal School was founded on the desire for some means of bringing together the corps of instructors and the student body periodically in such a manner as to bring out a perfectly frank exchange of ideas among the student officers, a large percentage of whom are invariably line officers with recent service with troops. The development of this feature of the Signal School has given results even exceeding what was originally hoped for. Experience has shown that the instructors and student officers take the keenest interest in these conferences, and are therefore encouraged to keep track of the current literature of their specialty and to bring about free discussions on the use and improvement of all classes and means of communication in campaign. In connection with these conferences the most important papers presented, together with their discussions, are printed by the school press and distributed to not only all officers of the Signal Corps, but to a considerable number of officers of the signal corps of the organized militia. In addition, such officers as well as officers from the regular Signal Corps, wherever stationed, are free to submit suggestions or papers for presentation at these conferences. The result of this has been the establishment de facto of a sort of correspondence school on signal-corps subjects which has succeeded in bringing into closer relations the Signal Corps of the Army and that of the organized militia.

The printed matter distributed practically amounts to a Signal Corps technical journal, although the publications are issued at no stated times, but only as material of importance is developed which it is desired to disseminate in the most efficient manner.

FIRE-CONTROL EQUIPMENT FOR FIELD ARTILLERY.

A number of improvements in the electrical signaling equipment for the fire-control system of the field artillery have been made during the year with a view toward increasing the efficiency of this equipment. A new type of field telephone has been perfected and adopted. A supply of these telephones is now being manufactured. A new type of field wire for the fire-control system of the mountain artillery has been designed and is now being investigated with a view to determining its suitability for pack transportation and for use on pack-mule reels.

During the year a number of articles of equipment used in fire-control systems of the field artillery in foreign armies have been purchased by the Signal Corps with a view toward the possible improvement of equipment issued to the field artillery of the United States Army.

CABLE SHIPS.

During the year three cable ships, the *Burnside*, the *Joseph Henry*, and the *Cyrus W. Field*, were actively engaged in cable operations. The cable ship *Burnside* was engaged in the following work: Tested

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the Fort Worden-Fort Casey cable, Puget Sound, July 16, 1909; then proceeded to San Francisco Harbor and tested the Presidio-Fort Baker cable, July 29; laid cables between Fort Barry and Bakers Beach, July 30; Presidio and Fort Baker, August 10; picked up, tested, and relaid Fort Baker-Fort McDowell cable, August 11; laid Fort Baker-Fort McDowell cable, August 12 and 13; September 17 to 26 engaged in testing new cable delivered at Tacoma, Wash.; repaired cable between Forts Casey and Worden September 28 to October 13, and during same period picked up and replaced 10 miles of the Sitka-Seattle cable; repaired Sitka-Valdez and Valdez-Fort Liscum cables and disconnected cable office at Hadley during October and November; laid Douglas-Juneau cable January 26, 1910; constructed cable hut on Fort Lawton beach, repaired Valdez-Fort Liscum cable, and tested Valdez-Seward-Cordova cables during May; and relocated a portion of the Sitka-Valdez cable from rocky bottom, and replaced a defective portion in the Sitka-Valdez cable during June. The *Joseph Henry* and the *Cyrus W. Field* were used exclusively in connection with the laying and maintenance of fire-control cables in the artillery districts on the Atlantic coast. New cables were laid between Forts Howard and Smallwood, Delaware and Mott, Adams and Wetherill, H. G. Wright and Averys Point, Greble and Philip Kearney, and Greble and Getty. Fourteen cables were recovered and thirty-one repaired. Engaged in this work, the *Joseph Henry* steamed 6,031 miles and the *Cyrus W. Field* 3,772 miles. While at Fort Wood these ships have overhauled all of the deep-sea reserve cable, and, as opportunity permitted, worked over the reserve cable in the various artillery districts.

SIGNAL CORPS OF THE ORGANIZED MILITIA.

Signal troops now form a part of the organized militia in the following States: Alabama, California, Colorado, Connecticut, Illinois, Indiana, Kansas, Louisiana, Massachusetts, Michigan, Mississippi, Missouri, Nebraska, New Hampshire, New Jersey, New York, Ohio, Oklahoma, Pennsylvania, Rhode Island, South Dakota, Texas, Utah, Washington, District of Columbia, and Hawaiian Islands.

These organizations contain many men of technical ability and when properly organized, equipped, and trained they should be able to render excellent service. During the past year some progress has been made in properly organizing these troops and a considerable amount of the prescribed equipment has been furnished them. Progress in training, however, has been exceedingly slow, and these organizations as they stand to-day would be of little value in actual service.

Undoubtedly the quickest and best method for giving these organizations the maximum amount of training in the short time available is to associate them with regular organizations, but as there are only four of these regular organizations in the United States it is readily seen that such a method is quite impracticable at present. In lieu of this it is considered essential that a suitable noncommissioned officer be detailed for a tour of several months with each militia organization. If these organizations come into camp without this preliminary instruction it is practically impossible to accomplish anything in the short time available while they are in camp. Noncommissioned officers of the regular service are now being detailed with the infantry and cavalry of the several States. It is believed that the signal

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troops of the National Guard are even more in need of these instructors, as in addition to their military training it is exceedingly difficult for them to get started along right lines in their technical work.

Again, if these organizations are to be maintained they should be given adequate equipment. Any organization, however efficient, can not be expected to carry on this work with obselete or inadequate equipment. This equipment should include a certain number of horses, and some effort should be made to teach the men of these organizations horsemanship at their home stations. It must be evident that if these men know nothing about riding before reaching camp they will be of very little value as mounted men during the short period for which these camps are held. Moreover, it is highly essential in addition to being able to ride their horses that these men should have some idea of taking care of them.

Another important consideration in connection with signal troops of the national guard is the subject of inspection. The work of field companies is a special line of signal-corps work, and the instruments used in this work are of a special type and are not used in any other class of signal-corps work. It is highly important, therefore, that the inspection of these organizations should be made by officers who are thoroughly familiar with this particular class of work and the instruments by means of which it is carried on.

The above outline is believed to indicate obvious steps which should be taken to increase the efficiency of the signal corps of the organized militia, but until the personnel of the Signal Corps of the Regular Army is enlarged very little assistance can be given the organized militia.

WIRELESS TELEGRAPH WORK.

Wireless telegraph stations are in process of erection as a part of the fire-control equipment of artillery districts at Forts Wint (1 kilowatt), Mills (10 kilowatts), Stevens (1 kilowatt), and Winfield Scott (2 kilowatts). The equipment for these stations has already been delivered and will be installed as rapidly as local conditions will permit. In addition to the usual wireless equipment at Forts Wint and Mills a separate generating plant is being provided as a reserve unit for emergency use in case of disability to the post power plant, upon which their operation will normally depend.

The wireless equipment which has been furnished by the signal corps for installation on army transports has continued to give very satisfactory service. Signal-corps sets are now installed on nine transports and two cable ships. Three transports, the *Buford*, *Dix*, and *Kilpatrick*, have been equipped during the current year. The sets provided for these three transports differ in many of the essential principles of operation from the previous sets, embodying ideas which have recently been developed. It is expected that the results obtained from this equipment will exceed anything heretofore attained. The station originally in use on the *Kilpatrick* was transferred to the *Sumner* to make room for the later type of apparatus.

Considerable progress has been made on the installation of wireless telegraph stations at Forts Leavenworth and Riley, the former station having been completed and work on the latter commenced.

In accordance with the policy of the signal corps to keep at all times fully advised as to progress made by foreign governments in field equipment for communication purposes, the purchase was made

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during this year of a field wireless wagon set and a field wireless pack set from abroad. This equipment has been given a service test at Fort Leavenworth, preliminary reports of which indicate that the apparatus embodies many desirable features. The apparatus, however, has been developed to meet operating and service conditions quite different from those obtaining in the United States Army, and, as a whole, it is not considered suitable for adoption. There is, however, a field of usefulness for the field wireless wagon set, and the signal corps now has under development a set designed for this purpose.

The field wireless pack set of signal corps pattern, of which a large number are now in use, is giving general satisfaction. Extended experience demonstrated the possibility of certain improvements, which have been made, whereby the weight has been reduced and the portability increased without sacrificing its range or efficiency.

WIRELESS-TELEGRAPH STATIONS INSTALLED BY THE SIGNAL CORPS.

Name of station.	Call letter.	Power.	Whether open to public service.
United States.		*Kilowatts.*	
Fort Andrews, Mass	FC	1	Not open to public service.
Fort H. G. Wright, N. Y	FW	1	Do.
Fort Hancock, N. Y	FN	1	Do.
Fort Leavenworth, Kans	FL	3	Do.
Fort Levett, Me	FV	1	Do.
Fort Monroe, Va	FO	1	Do.
Fort Omaha, Nebr	FS	3	Do.
Presidio, San Francisco	FS	1	Under construction.
Fort Riley, Kans	FZ	3	Do.
Fort Totten, N. Y	FT	½	Not open to public service.
Fort Wood, N. Y	FD	3	Do.
Fort Worden, Wash	FX	1	Do.
Signal Corps Laboratory, Washington, D. C	SC	3	Experimental.
Fort Stevens, Oreg	FJ	1	Under construction.
Bureau of Standards	BS	2	Experimental.
Alaska.			
Circle City	FK	3	Open to public service.
Fort Egbert	FQ	3	Do.
Fairbanks	FB	3	Do.
Fort Gibbon	FG	10	Do.
Kotlik	FE	1	Do.
Nome	FD	10	Do.
Petersburg	FP	1	Do.
Fort St. Michael	FM	3	Do.
Wrangell	FW	1	Do.
Philippine Islands.			
Fort Wint	.....	1	Not open to public service.
Corregidor Island	FH	10	Under construction.
United States Army transport service.			
Kilpatrick	ATK	2	Not open to public service.
Logan	ATL	3	Do.
Sherman	ATR	3	Do.
Sheridan	ATS	3	Do.
Thomas	ATU	3	Do.
Sumner	ATH	3	Do.
Dix	ATD	2	Do.
Buford	ATB	2	Do.
Cable ship Burnside	BS	3	Do
Cable ship Joseph Henry	FR	2	Do.
Cable ship Cyrus W. Field	FA	1	Do.
Artillery harbor tugs.			
Captain Rowell	RW	½	Not open to public service.
Reno	X	½	Do.
General Randall	OR	½	Do.
General R. B. Ayers	FY	½	Do.
Harvey Brown	HB	½	Do.

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SIGNAL TROOPS IN MANEUVERS.

During the year the four field companies in the United States served at the following camps of instruction and military tournaments: Camps of instruction—Company A, Pine Camp, N. Y., and Fort Benjamin Harrison, Ind.; Company D, Chickamauga Park, Ga., and Leon Springs, Tex.; Company E, American Lake, Wash., and Atascadero, Cal.; Company I, Dale Creek, Wyo., and Fort Riley, Kans. Military tournaments—Company A, Chicago, Ill.; Company D, Nashville, Tenn.; Company E, Tacoma, Wash.; Company I, Des Moines, Iowa.

It is to be regretted that no regular signal troops could be furnished for the camp of instruction held at Gettysburg, Pa.

In the Philippines a provisional detachment hastily organized from signal troops on duty in Manila and at Fort William McKinley rendered valuable and efficient service during the maneuvers, February 15–27, 1910.

MILITARY TELEGRAPH LINES IN THE UNITED STATES.

During the year a telegraph office was opened at Fort Ward, Wash., and one at Fort H. G. Wright. No offices were discontinued.

"This-line" receipts amounting to $562.11 were collected, and "other-line" receipts amounting to $6,409.98 collected and turned over to commercial companies. A total of 66,489 messages of all kinds were handled over military telegraph lines in the United States. These figures do not take into account money collected and turned over to commercial companies at offices where the Signal Corps operator collects no "this-line" receipts. There are about sixty such offices, and the lines concerned are merely loops of comparatively short length, connecting military reservations with the nearest point at which a commercial line can be reached, and are maintained solely for the convenience of those in authority in handling official business.

The lines in operation in the United States, over which "this-line" business is handled by Signal Corps operators are as follows:

Fort Wood, Black Tom Wharf.
Fort Washington to Fort Myer.
Fort H. C. Wright to New London.
Holbrook-Apache.
Huachuca-Lewis Springs.
Fort Worden-Seattle.
Fort Ward-Seattle.

During the year some trouble has been experienced in maintaining the line connecting Fort Washington and Fort Hunt with Fort Myer owing to the difficulty of maintaining a right of way, but it is proposed to shorten the line and connect with the Western Union switchboard at Washington, via Alexandria, abandoning the line from Alexandria to Fort Myer and communicating from Forts Hunt and Washington over commercial lines. It is believed that this will result in a decided improvement.

POST TELEPHONE SYSTEMS.

During the fiscal year "extended" post telephone systems, in accordance with the system prescribed in General Orders, No. 170,

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War Department, 1908, have been installed at Forts Logan, Colo., Des Moines, Iowa, Snelling, Minn., Jefferson Barracks, Mo., Forts Morgan, Ala., Dade, Fla., Caswell, N. C., and Rosecrans, Cal. At the close of the fiscal year there were 113 post telephone systems in satisfactory operation in the army, of which 45 were "extended" systems prescribed in General Orders, No. 170, War Department, 1908. Of these 45 systems 34 are located at artillery posts and 11 at interior posts, the remaining 68 systems in active operation conforming to the general plan outlined in General Orders, No. 97, War Department, 1906, 15 being located at coast artillery posts and 53 at interior posts. Plans have been perfected during the year for the installation during the coming summer of a common battery underground system at Fort D. A. Russell, Wyo.

In the Philippine Islands telephone systems have been maintained at Augur Barracks, Camps Bumpus, Connell, Downes, Gregg, Eldridge, John Hay, Jossman, Keithley, McGrath, Overton, Stotsenburg, Wallace, Ward Cheney, Wilhelm, Forts Mills, William McKinley, Wint, Iloilo, Ludlow Barracks, Pettit Barracks, Regan Barracks, Torrey Barracks, and Warwick Barracks.

TARGET RANGES.

Underground buzzer systems for facilitating marking and communication on target ranges were installed during the year on the ranges at Fort Niagara, N. Y., Fort Ethan Allen, Vt., Fort Sheridan, Ill., Fort Riley, Kans., and the Presidio of Monterey, Cal. Plans were prepared and material assembled for similar installations at Fort Leavenworth, Kans., Fort Sam Houston, Tex, and Fort D. A. Russell, Wyo. The work at Fort Leavenworth and Fort Sam Houston was necessarily postponed until July and August, 1910, to enable the ranges to be used for firing. The work at Fort D. A. Russell was similarly postponed on account of the construction of a new rifle range.

VISUAL SIGNALING.

At the close of the fiscal year all troops of cavalry, companies of Signal Corps, Coast Artillery, infantry, and Philippine scouts, and machine-gun platoons were equipped with a standard visual signaling outfit, composed of two flag kits and two excellent field glasses.

In addition to this equipment all machine-gun platoons were supplied with an excellent high-power field glass and all field companies of the Signal Corps with day and night signaling apparatus.

SIGNAL CORPS MANUALS.

A new edition of Signal Corps Manual No. 7 has been issued during the year, a new edition of Manual No. 6 is now in the hands of the Public Printer, and a new edition of Manual No. 3 is now in process of revision. A list of signal corps manuals issued by the second section, General Staff, is as follows:

No. 2, Regulations for Military Telegraph Lines.
No. 3, Electrical Instruments and Telephones.
No. 4, Submarine Cables.
No. 6, Visual Signaling.
No. 7, General, Property, and Disbursing Regulations.
No. 8, Apparatus for Fire Control and Direction.

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ENLISTED MEN.

The enlisted force, which aggregated 1,180 on June 30, 1910, has experienced the following changes: Enlisted and reenlisted, 343, of whom 210 were recruits; deserted, 40, being 3.4 per cent of the total force; died, 3, 0.3 per cent; discharged for disability, 8, 0.7 per cent; discharged by purchase, 99, 8.4 per cent.

DISBURSING DIVISION.

The following statement shows the volume of the work handled during the fiscal year:

Orders placed	1,865
Vouchers audited and paid	2,877
Transportation requests prepared	1,865
Advertisements for proposals issued (about 5,720 copies being distributed)	799
Accounts current from officers handling Signal Corps funds, covering 11 appropriations, examined	321
Returns of Signal Corps property examined	2,157

Letters, memorandums, post-card notices, and a large number of other miscellaneous papers pertaining to the above items are not included in the statement, it being impracticable to keep an accurate record of the number.

The following shows the disbursement from Signal Corps appropriations during the fiscal year ending June 30, 1910:

Title.	Amount.	Disbursements.	Balance unexpended.
1. Signal service of the army, 1910	$280,000.00	$280,000.00	.....
2. Maintenance, etc., fire-control installations at seacoast defenses	145,500.00	145,500.00	.....
3. Washington-Alaska military cable and telegraph system, 1910-11	100,000.00	44,814.99	$55,185.01
4. Wireless telephone apparatus, 1910-11	30,000.00	21,416.65	8,583.35
5. Annunciator buzzer systems at target ranges, 1910	18,200.00	18,066.61	133.39
6. Washington-Alaska military cable and telegraph system, 1909-10	2,004.38	243.67	1,760.71
Total	575,704.38	510,041.92	65,662.46

Disbursements have also been made from allotments to the Signal Corps as follows:

For fire-control installations, $125,961.56 out of $255,252.02; for encampment and maneuvers of the organized militia, $13,944.55 out of $15,528.93; and for the Board of Ordnance and Fortification, $850 out of $1,000.

ELECTRICAL AND TELEGRAPH DIVISION.

On November 1, 1909, the electrical and telegraph divisions were consolidated. The two divisions had been located in the building at 1710 Pennsylvania avenue NW. for about ten months and were supervised by the same officer. The consolidation made possible the combining of certain records which had been kept independently by the two divisions and has greatly simplified the handling of papers.

The work of this division includes the handling of all requisitions for supplies for posts, organizations, and depots, the supervision of construction of fire-control installations, post-telephone installations, target-range equipments, and wireless installations, the revision and

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publication of Signal Corps manuals, and the preparation and distribution of technical specifications and blue-prints.

A thoroughly capable engineering force has expeditiously and satisfactorily handled all questions brought up in the construction work of the corps and in the development of experimental apparatus. The inspections of materials purchased in this vicinity have also been efficiently handled.

All requisitions from coast artillery posts, as well as those from interior posts and state national guards, are being handled expeditiously, especial attention being paid to requests from the national guard, such requisitions being handled the day they are received.

The drafting section, laboratory, instrument shop, and carpenter shop of the electrical and telegraph division have maintained, in connection with the experimental work of the corps, their high standard of efficiency and have fully justified the policy of the office in establishing them.

SIGNAL CORPS LABORATORY AT THE BUREAU OF STANDARDS.

The army appropriation act approved March 3, 1909, contained an item for the purchase and development of wireless telephone apparatus, and became available July 1, 1909. In order that experiments may be conducted between two points, and also to make available for tests the resources of the Bureau of Standards, arrangements have been made through the Secretary of War, the Secretary of Commerce and Labor, and the Director of the Bureau by which space in the new building recently completed has been assigned to the use of the Signal Corps. A 180-foot antenna has been erected, and the necessary equipment for carrying on such work secured. A high-frequency generator of 2-kilowatt capacity, capable of giving 100,000 cycles per second, has been installed in the basement of this building, and suitable leads provided to the experimental rooms above, which are in close proximity to the antenna mast. The mechanical difficulties in constructing such a high-frequency generator have been finally overcome. The attainment of this result involves the use of a rotor of about 1 foot in diameter, operative at a speed of 20,000 revolutions per minute. This machine produces approximately pure sine waves, which are sustained in amplitude and correspond to a wave length of about 1.86 miles. In addition to this generator, two small arc-generators with accessories have been installed, one at the Bureau of Standards and the other at the Signal Corps laboratory, 1710 Pennsylvania avenue NW. These generators are capable of producing sustained electrical oscillations of 400,000 to 500,000 per second. Due to the very novel forms of apparatus required in this type of work, many vexatious delays have occurred in securing a test of this equipment. This, however, is to be expected in work of this kind.

A complete wireless telephone plant is now installed in the laboratory at the Bureau of Standards and another in the laboratory at 1710 Pennsylvania avenue NW. Telephone conversation without wires is easily attained between these points. The articulation is remarkably pure and distinct, since the ether transmits the electric-magnetic vibrations which make up the quality of the human voice with much greater integrity than any form of conducting wire. No attempt has yet been made to attain long distance with wireless

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telephony, but improvements in the system and a clear understanding of the practical conditions upon which the efficient operation of wireless telephony depends is being made the subject of present inquiry.

LABORATORY.

In connection with the electrical and telegraph division of this office a small laboratory and test room has been maintained for a number of years and has proved an immense saving in expense. This laboratory is now in the same building with the offices occupied by the electrical and telegraph division, under whose direction the work of this important section is carried on.

The laboratory is organized primarily to assist in the development and design of new equipment. As soon as a new instrument or device is thought to be suitable for adoption as standard its connection with the laboratory ends, and its future production is taken up through commercial channels. The shop in its new quarters has been fitted with an individual motor drive for the various machines, and its adaptability for the work in hand greatly increased.

The laboratory equipment has been considerably added to during this period, chiefly with a view to preparing for research work along the lines of wireless communication. The limitations of the wireless telephone and telegraph at the present time and the large potentialities of the subject indicate a desirability for further effort along this line.

III. STANDARD FIRE-CONTROL INSTALLATIONS FOR COAST DEFENSE.

During the present fiscal year standard fire-control installations were completed at five posts in the artillery district of San Francisco, the total cost of Signal Corps work in this district being approximately $250,000. These installations embodied many features not found in previous systems, as necessitated by local conditions and the recent developments in methods of fire control. The system of telephone communication connecting the posts in the district is unusually extensive and complete.

In the Hawaiian Islands all Signal Corps material for the approved fire-control scheme has been delivered. Storerooms have been established and working parties organized. Much of the preliminary engineering work has been done, but active construction of batteries, fire-control stations, and underground duct lines has not sufficiently advanced to enable the Signal Corps work to be taken up. As soon as conditions will permit, work will be taken up at Forts Armstrong, De Russy, and Kamehameha. A signal corps officer has been stationed at Honolulu to have immediate charge of this work under the direction of the chief signal officer, Department of California.

In the Philippine Islands, the fire-control work at Fort Wint on Grande Island has proceeded so far as the status of construction work of other departments will permit at the present time. This installation is about 75 per cent complete, but operations at this post are practically suspended, and it is impracticable to state when this system will be completed. At Fort Mills, in the artillery district of Manila Bay, a large system is in progress of construction. The work has advanced

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to such a degree that many elements of the system are now in use by the coast artillery corps. Material for the completion of this, and all other authorized work for the Philippine Islands, has been delivered. The work at Fort Mills is about 80 per cent complete.

The equipment for the Signal Corps fire-control installations in the artillery district of the Columbia was delivered in the year 1908, but, upon advice from the engineer department that Signal Corps operations could not be favorably conducted, active construction work was suspended during the fiscal year 1909. A Signal Corps representative has been maintained in this district to advise and confer with other construction departments as to details of the work and to secure necessary cooperation. The Chief of Engineers has lately advised that conditions are now favorable for the beginning of Signal Corps work, and this will be done in the immediate future.

The artillery district of New London is the next to receive a standard fire-control installation, and a small allotment has been made the Signal Corps to maintain a representative in this district to cooperate with other construction departments and complete the usual preliminary engineering work.

Post telephone systems are being installed as a part of each standard fire-control system and will be completed as a part of the fire-control installations referred to above. In addition, four posts not having standard fire-control installation were similarly equipped during this year from a special appropriation for this purpose. With the completion of these systems, there will be thirty-four coast artillery posts with the extended telephone systems prescribed by General Orders, No. 170, 1908. At the present rate of progress all coast artillery posts will be provided with telephone systems of this type within a few years.

The work required by General Orders, No. 194, War Department, series 1906, has been completed at the following places: Forts Hamilton, Wadsworth, Hancock, Schuyler, Totten, Strong, Warren, Revere, Standish, Heath, Preble, McKinley, and Lyon.

IV. WIRELESS TELEGRAPHY.

INTERNATIONAL CONTROL OF WIRELESS TELEGRAPHY.

The international wireless-telegraph business of the world is conducted under a treaty signed at Berlin on the 3d day of November, 1906. This treaty was the result of a convention which was participated in by twenty-six of the principal nations. Of these countries, the following have confirmed the treaty: Belgium, Denmark, the Netherlands, Norway, Brazil, Sweden, Mexico, Roumania, Germany, and all its protectorates, Great Britain (under certain reservations), Japan (under certain reservations), Spain, Bulgaria, Persia, Russia, Austria-Hungary, Portugal, and Turkey.

As the United States up to this time has not given its adherence to the convention, ships flying the American flag find themselves without standing in international wireless telegraph, as none of the contracting countries is compelled to receive a telegram from the ship of a noncontracting country, and any coastal station in a foreign country may refuse transmission of a message to a station on shipboard subject to a noncontracting country.

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The history of the whole matter is recorded in the published copy of the treaty, Government Printing Office, 1907, issued by the Bureau of Equipment, Navy Department; in the report of the ambassador of the United States at Berlin to the Secretary of State, November 17, 1906; in Senate Document No. 452, Sixtieth Congress, first session, which shows the action of the War Department, Navy Department, and the Department of Commerce and Labor on the wireless telegraph convention, and the special message of the President of the United States to Congress; and in the published hearings of the Committee on Foreign Relations of the United States Senate.

In view of the difficulties which ships bearing the United States flag have in communicating with foreign ports, it is recommended that the matter again receive attention, and, through the proper channels, be brought anew to the consideration of the United States Senate.

NATIONAL CONTROL OF WIRELESS TELEGRAPHY.

The only action of the United States Government looking to the regulation of wireless telegraphy is the approval of the President of the United States, dated July 29, 1904, of the report of an interdepartmental board appointed by the President to consider the entire question of wireless telegraphy in the service of the National Government.

Owing to the absence of definite regulations there is great confusion in the transmission of wireless messages on the coast of the United States, which interferes very materially with wireless communication between the various seacoast defenses and with our ships at sea. The army now has 15 wireless telegraph stations located at military posts in this country and 9 stations at points in Alaska.

It is recommended that the War Department, through the proper channels, urge the necessity for appropriate legislative action looking to the definite control of wireless telegraphy and telephony in peace and war.

V. MILITARY AERONAUTICS.

Although the United States was the first nation to officially recognize the aeroplane for military purposes, and issued specification in December, 1907, and carried out official tests in September, 1908, demonstrating the practicability of mechanical flight, yet such has been the rapid development of aerial navigation since that date that this country has been left far behind in its aeronautical equipment and its trained personnel. In fact, the only aeronautical equipment that this nation possesses at present consists of one small practice dirigible balloon, one Wright aeroplane, and three small captive balloons.

It may be said without hesitation that the principal military subject at present engrossing the attention of congresses and parliaments of European first-class powers is the possible influence of aerial navigation upon the military art. In the past year aeronautics, as far as our army is concerned, has been practically at a standstill. In the meantime European powers are displaying marked activity in the development and supply of both the dirigible and the aeroplane for war purposes.

It is frequently said that the United States, due to its isolated position, is not likely to become involved in war, and therefore the

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most economical procedure in aerial navigation is to wait until other nations have determined upon the types best suited to military purposes, thus shifting the expense of experiment and development to other nations. In reply to this it must be remembered that in 1897 no one believed that the United States had any prospect of a war, yet within one year from that date we were actually involved in a war with Spain without any adequate military preparation for a war, which resulted in great confusion, expense, and unnecessary loss of life. Furthermore, experienced military airmen can not be created after war is declared, and the demands of this new service will undoubtedly require higher qualities of training, judgment, and courage than any other branch of the military service. Military authorities agree that the only way to meet aerial attack is by similar weapons, and that there is no chance of adequate protection being given locally. The advent of aerial navigation has, in fact, extended the vulnerable area of a country to every acre of its territory.

PROGRESS IN AVIATION DURING THE PAST YEAR.

The past year has been one of unprecedented activity and achievement scarcely ever before equalled in the development of any new art. A year ago only a very few specialists could fly in aeroplanes, and then only in very selected weather. At present hundreds of people can fly aeroplanes, and furthermore they can fly in weather which twelve months ago was considered absolutely prohibitive. It may be said that aeroplanes can fly in at least half the days of the year and half the hours of the day, if there be sufficient reason for so doing.

In the matter of speed, this has been increased practically 50 per cent during the past year, until over 66 miles per hour is officially reported in France at the Rheims meet of July last. The distance flown without stop at present is 244 miles in five hours and three minutes. The total distance in a single week by a single aeroplane is 1,622 miles. The highest altitude reached by an aeroplane reported is 8,692 feet, or 1.64 miles. Cross-country flying has come into everyday practice, both over land and over water. In France aeroplanes have flown from Paris to the German frontier and return on a schedule requiring flights regardless of weather and under conditions more severe than ever before attempted. The distance traversed was nearly 500 miles. The Alps have been crossed in forty minutes. A flight has been made from Albany to New York City, and also from Paris to London. An aeroplane has carried a pilot and four passengers. At present the principal records are held by monoplanes, whereas a year ago most of these records were held by biplanes.

In the matter of motors the horsepower a year ago averaged from 25 to 30, and it has now been increased to 50 to 100. The highest speed machines have smaller sustaining surfaces and greater proportion of horsepower. The reliability of the motor has been materially increased, thus making cross-country flying an ordinary event.

AEROSTATION.

Germany and France continue to lead in the development of the dirigible airship for military purposes. In Germany there are three general types of the dirigible balloon which are being simultaneously

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developed, namely, the rigid type, represented by the large "Zeppelin" airship; the semi-rigid type, represented by the "Gross" airships; and the non-rigid or flexible type, represented by the Parseval. The semi-rigid and non-rigid types are favored by the military authorities, due to the primary fact that they can easily be deflated in stress of weather, and are therefore more suited for operation with mobile forces. They have been developed at the present moment to a very high state of efficiency.

The headquarters of the military development of these airships is at the aeronautical station at Tegel, near Berlin, where the government factory for the fabrication of these ships is located and where a force of skilled mechanics and workmen is constantly employed. The factory for Parseval airships is at Bitterfeld, where another complete plant, including gas-generating outfit and large hangars, or balloon houses, is located. Such has been the progress in the construction and performance of these ships during the past six years that airship maneuvers are now conducted on an extensive scale and military evolutions of various kinds are carried out similar to fleet maneuvers by naval vessels at sea.

In addition to this, experiments have been conducted to determine the efficiency of artillery fire against airships and balloons, and special types of guns have been developed especially adapted for use against airships. These guns comprise two general types, namely, a fortress type and a field type. During the past year marked improvement in speed, reliability, and radius of action of dirigible airships must be recorded. The latest types of these airships are invariably provided with double sets of engines and propellers, and the horsepower of each set is over 100. The speed has constantly been increased, and 35 miles an hour has been attained. The enormous "Zeppelin" airships, which have a rigid interior frame, have every provision made for the comforts of travelers for extended trips, and voyages lasting over twenty-four hours have been made.

From United States consular reports and other available sources of information it is estimated that Germany at present possesses 14 military dirigible airships and 5 aeroplanes, France 7 military dirigible airships and 29 aeroplanes, and these numbers are being rapidly increased by liberal appropriations.

MILITARY AIRMANSHIP.

The Signal Corps at present has but one lieutenant and nine enlisted men on duty in connection with aeronautics, and until the Signal Corps is increased by suitable legislation it will be impossible to furnish more officers and men for the absolutely necessary training demanded in airmanship. There is now but one officer of the Signal Corps who is a licensed pilot for free balloons. At a low estimate, it is believed that at least twenty aeroplanes should be in the service of the United States on regular practice at different points of the country throughout the year and present at the camps of instruction for regular troops and organized militia. This estimate is considered extremely low and would provide but two aeroplanes for each camp of instruction. To operate this number of aeroplanes would require at least twenty specially trained officers as pilots. In addition to this, each machine must carry at least one observer, which, experience

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has shown, will require much training and actual practice before the usefulness of the aeroplane is attained. The new Field Service Regulations, 1910, provide for aeronautical companies of the Signal Corps fully equipped with suitable aeronautical devices for service with the mobile forces. At present not even a model of such a company could possibly be organized, nor will it be possible to do so until the Signal Corps is increased by suitable legislation.

AERONAUTICAL TESTS AND RESEARCH.

Realizing the importance of aeronautics, Great Britain has recently appointed an advisory committee for aeronautics, with the Right Honorable Lord Rayleigh as president and nine other gentlemen eminent in the military, naval, and physical sciences as associates. This committee has submitted an interim report, which has been printed for Parliament and outlines a thorough and systematic programme for the theoretical and experimental investigations in aerostatics and aerodynamics as bearing on the important problems constantly arising in aerial navigation. The National Physical Laboratory, which corresponds to the United States Bureau of Standards, has been provided with special buildings and apparatus suitable for undertaking various kinds of aeronautical experiments and tests under the direction of the Government to encourage in every possible way the advance of this new science in Great Britain.

In Germany the University of Göttingen has for a number of years given special attention to aerodynamical experiments in a specially constructed and well-endowed laboratory, and it is understood that in the latest designs of dirigible airships for the German Government valuable assistance has been received from the study of models in this laboratory.

In France the University of Paris has recently been richly endowed and provisions made for carrying forward similar experimental work for the citizens of the French Republic.

In Russia one of the best equipped aerodynamical laboratories in the world has been founded near Moscow.

In addition to this aerial navigation has become the subject of special instruction at various universities in Europe.

It is evident that the United States should, without delay, make due provision for carrying on similar work for the various government departments interested and to assist the large number of American inventors and manufacturers at present devoting themselves to the problems of aerial navigation.

Aerial navigation has taken hold of the entire civilized world as no other subject in recent times, and represents a movement that no forces can possibly check.

In its military aspects it is a subject which we must seriously consider whether we wish to or not, and the sooner this fact is acknowledged and measures taken to put us abreast with other nations the better it will be for our national defense.

Very respectfully,

JAMES ALLEN,
Brigadier-General, Chief Signal Officer of the Army.

The SECRETARY OF WAR.

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REPORT OF THE CHIEF OF COAST ARTILLERY.

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REPORT OF THE CHIEF OF COAST ARTILLERY.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF COAST ARTILLERY,
Washington, September 1, 1910.

SIR: In accordance with the requirements of the Army Regulations, which make it the duty of the Chief of Coast Artillery to advise the War Department of the efficiency of the personnel and material of the coast artillery and to make such recommendations in reference thereto as shall tend to promote the efficiency of this arm of the service, I have the honor to submit the following report:

PERSONNEL.

ACTUAL STRENGTH OF THE COAST ARTILLERY CORPS.

The actual strength of the Coast Artillery Corps on July 1, 1910, was 634 officers and 18,109 enlisted men. The authorized strength on that date was 672 officers and 19,321 enlisted men, so that a shortage existed of 38 officers and 1,212 enlisted men. On July 1, 1908, the corresponding shortage of enlisted men was 5,949. The fact that the enlisted strength is now so nearly that authorized by law is believed to be largely due to the increased pay in all grades authorized by Congress in 1908, combined with the increased opportunities afforded by the grades of master electrician, engineer, electrician sergeant, master gunner, etc. These grades provide a means by which the ambitious coast artillery soldier can work himself up from a private at $15 a month to a master electrician at $99 per month.

PRESENT AUTHORIZED STRENGTH AND STRENGTH REQUIRED.

The authorized maximum strength of the Coast Artillery Corps is 701 officers and 19,321 enlisted men. The number required to furnish one manning detail for the seacoast fortifications already constructed and the additional defenses recommended by the National Coast Defense Board in its report of February, 1906, is 2,278 officers and 55,110 men.

Considered as a whole the fortifications of the United States as well as of our insular possessions are now well advanced toward completion; but, while this is so, it should always be borne in mind that these fortifications if completed would furnish only the requisite material for our coast defense, that an adequate and trained personnel would still be necessary to operate these defenses, and that without such adequate force of trained men, capable of efficiently handling the different and complex elements of our seacoast defenses, the defenses themselves would be useless, and all the expenditures made upon them, amounting in round numbers to $100,000,000, would be

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wasted or worse than wasted, as they would have lulled us into a false sense of the security of our fortified harbors from attack by an enemy.

It is believed to be established beyond dispute that in order to insure the efficient handling of our coast defenses in time of war it is necessary that we should maintain in time of peace at least one full manning detail of coast artillery troops. This view has been expressed repeatedly not only by myself and my predecessors as chief of artillery, but by practically all general officers who have commanded departments containing a preponderance of coast artillery. This view has also been expressed from time to time by various Secretaries of War and leading members of the military committees of Congress. In fact, I think it quite safe to say that it is wholly accepted by all who have an intimate knowledge of the conditions and requirements of our coast defenses. In time of war we must have at each place liable to attack such a number of coast-artillery troops that they will be sufficient not only to form a full manning detail but to maintain a full manning detail, allowing for absentees, sick, and wounded. And in case of a long-continued attack or siege it is more than probable that for some of the elements, if not all, it will be necessary to maintain more than one full manning detail in order to provide reliefs.

The question of the necessity of having a full manning detail in time of peace has not been disputed, but there have been from time to time some differences of opinion as to how this manning detail should be provided. Opinion, however, has in the last year or two become crystallized and the Secretary of War in his annual report of 1908 thus clearly states what he defines to be the adopted policy of the War Department in this matter:

> The situation in regard to the present strength of the coast artillery and the strength that will ultimately be required may be briefly stated as follows: One complete manning detail for all the elements of all the coast defenses constructed and proposed in the United States, the insular possessions, and the entrance of the Panama Canal is unquestionably needed in time of peace. To provide such a detail will require 2,278 officers and 55,110 men. Considering it improbable that in the near future Congress would authorize in time of peace so large a number of men for the coast artillery alone, the department adopted the plan of asking Congress to furnish a portion of this number, relying on the militia of the seacoast States to furnish the remainder. The portion to be furnished by the regular establishment has been fixed at a complete manning detail for all mines, power and light plants, for all gun defense in insular possessions, and one-half the number required for gun defense in the United States.

In order to carry out this policy for providing one manning detail for all defenses constructed and proposed, it will be necessary to provide from the coast artillery militia 902 officers and 21,204 enlisted men, and to increase the regular coast artillery by 675 officers and 14,584 men. These requirements are shown in detail as follows:

	Officers.	Men.
For all mines, power and light plants of home ports	182	5,300
For all mines, power and light plants of insular and canal ports	43	1,270
For all gun defenses of insular and canal ports	249	6,131
For one-half of all gun defenses of home ports	902	21,205
Total regular coast artillery required	1,376	33,906
Total militia coast artillery required	902	21,204
Total force, regulars and militia required	2,278	55,110

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As to the regular coast artillerymen, 1,376 officers and 33,905 men, required by the policy of the War Department for manning the defenses of our home and insular ports, only 701 officers and 19,321 men are now authorized by law, leaving 675 officers and 14,584 men yet to be provided for by congressional legislation.

The foregoing relates to the personnel for the armament now completed or under construction and, in addition, that proposed by the Taft Board as necessary for a complete national defense.

If the former only is considered, that is, the personnel for the armament already installed or being constructed both at home and in foreign possessions, the shortage existing at this time is somewhat less, but is still considerable, amounting to 301 officers and 7,699 men, shown in detail as follows:

	Officers.	Men.
The strength of the Coast Artillery Corps as now authorized by law is, as stated (excluding chaplains)	701	19,321
Of this authorized strength were specially provided by the artillery increase bill of January 25, 1907, for manning the mines, power plants, and searchlights of home ports.	174	4,970
This leaves as the personnel now authorized for the gun defenses of home ports and for both the gun and mine defenses of insular ports.	527	14,351
On January 25, 1907, the date the artillery increase bill passed, there were required to man the gun defenses of *home ports* already constructed	1,350	36,863
To man one-half the gun defenses then constructed there were, therefore, required	675	18,431
The personnel now authorized for the gun defenses of home ports and the gun and mine defenses of insular ports	527	14,351
was, therefore, just	148	4,080
short of the number required to man the gun defenses constructed in home ports alone on the day the bill passed.		
Since the bill passed, no new guns have been installed, but the fortification bill of 1908 provided for a number of new guns to be mounted in Puget Sound which will require for *one-half of one manning detail*	4	116
Besides these new guns, there have been installed or have been appropriated for, since the bill passed, in Hawaii and the Philippines guns and mines which will require for *one manning detail*	149	3,503
When, therefore, the defenses appropriated for since the artillery increase bill was passed are completed, which should be within the next twelve months, there will be required to furnish the quota of regular coast artillerymen for one manning detail for these new defenses	153	3,619
If to these numbers there are added	148	4,080
which the Coast Artillery Corps, as authorized by the increase bill, was short of the personnel required for *one-half* of one manning detail for the guns in home ports then mounted, it will be seen that the authorized strength of the Coast Artillery Corps is just	301	7,699
short of the personnel required to furnish *one complete manning detail* for the mines in home ports, and for guns and mines in insular ports, and for *one-half of one complete* manning detail for the guns in home ports—all of which defenses have been or are now being installed.		

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	Officers.	Men.
If the defenses now being installed in Hawaii and the Philippines are provided from the authorized maximum strength (701 officers, 19,321 men) of the Coast Artillery Corps, with one complete manning detail, as it is believed should be done, there will remain for the gun defense of home ports now installed	378	10,848
which is the total personnel now authorized for gun defense	527	14,351
less the personnel required for the gun and mine defenses of Hawaii and the Philippines	149	3,503
	378	10,848
As there are required for one manning detail for the gun defenses now installed in home ports, as already stated	1,350	36,863
it will readily be seen that the remaining for the gun defenses installed in home ports after the gun defenses being installed in Hawaii and the Philippines are manned is less than 30 per cent of one complete manning detail for the home guns.	378	10,848

It can hardly be presumed that Congress appropriated for the additional defenses provided since the last artillery increase bill was passed, or that it will continue to appropriate for new and costly coast defenses either for our home ports or our insular possessions, without some thought or intention of providing the necessary trained personnel to insure an adequate return for the enormous sums expended on these defenses. Under the last artillery increase bill five years were required to provide the 296 officers authorized by the bill—an increment of one-fifth of this number only being annually authorized to insure the procuring of men with the requisite qualifications for second lieutenants of coast artillery. As the last of the five increments authorized by the act was open for appointment on July 1, 1910, it is believed that it is time some consideration was being given by the War Department and Congress toward making another coast artillery increase to provide the necessary manning detail for the new defenses added since the last increase was made and for providing the necessary quota of regular coast artillery officers and men required for one-half of the manning detail for the guns of the United States already mounted. The total personnel thus required is, as above shown, 301 officers and 7,699 men; and it is therefore earnestly recommended as being in the best interests of the public service that a bill providing for this increase in the coast artillery be prepared by the War Department for submission to Congress at its next session.

THE MILITIA COAST ARTILLERY RESERVES.

The militia required by the policy of the War Department as coast artillery reserves for manning one-half of the gun defenses, constructed and proposed, of the United States proper is, as has been already shown, 902 officers and 21,204 men. Since it was first practically demonstrated in the joint regular army and militia coast artillery maneuvers of 1907 that militia could well be utilized in connection with the manning of our gun defenses, the War Department has encouraged in every practicable way the development of this important adjunct to the national coast defense, and, as a consequence, much progress has been made, both in the number of militia reserves and in the material advance in efficiency as coast artillerymen of the greater part of these state troops.

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With a view to expediting the practical instruction of these militia coast artillery reserves, as well as to promoting good fellowship and kindly relations between the regular and militia coast artillery troops, an effort has been made, in carrying out the policy of the War Department regarding these militia reserves, to have the state authorities of each seacoast State interested provide a militia coast artillery company for each regular coast artillery company assigned to gun defense in the fortified harbors of the State. This duplication of companies is confined to the gun defense alone, owing to the nature of submarine-mine work and the many difficulties that would be connected with any attempt to give practical instruction in mine work to militia companies.

Of the 170 regular coast artillery companies now authorized 117 are assigned to the gun defenses of the United States proper, and 41 to the mine defense, the remaining 12 companies being assigned to the gun and mine defense of our insular possessions.

The War Department has succeeded in getting the seacoast States interested in organizing or arranging for the organization of more than enough companies of militia reserves to duplicate the existing authorized regular coast artillery companies assigned to gun defense, there being at the present time 122 companies of militia coast artillery reserves actually organized and other companies in process of organization or under promise by the state authorities that they will be organized within the next few months.

It therefore appears that the efforts of the War Department to provide militia coast artillery reserves is in advance of federal legislation providing for regular coast artillery personnel, as there are at present more militia coast artillery reserve companies organized or in process of organization than there are companies of regular coast artillery authorized for gun defense. The details regarding the organization or status of the militia reserve companies at the present time are set forth in the following table, which shows in addition that, whereas in some seacoast States more militia coast artillery reserves have been provided than are necessary to duplicate the regular coast artillery companies assigned to gun defense in the fortified harbors of these States, in other States a less number than are necessary have as yet been organized or provided.

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State.	Total strength required.		Total number of companies required to duplicate regular gun companies now organized.	Number of companies organized.	Organizations.	Strength.		Number of companies expected to be organized in near future.	Remarks.
	Officers.	Men.				Officers.	Men.		
Maine	55	1,300	9	12	Corps	43	609		
New Hampshire	18	394	2	4	do	14	222		
Massachusetts	73	1,780	9	12	do	50	737		
Rhode Island	60	1,379	8	16	2 artillery districts of 8 companies each.	68	769		
Connecticut	63	1,441	7	13	Corps	50	641		
New York	76	1,904	13	31	Corps; 3 artillery districts of 12, 10, and 9 companies, respectively.	111	2,102		
New Jersey	28	723	6						The State of New Jersey has not indicated that it will provide any coast artillery reserves.
Delaware	28	695	4					2	Under date of May 15, 1909, the adjutant-general of Delaware stated that he would exert every effort to effect the organization of 2 companies of coast artillery reserves.
Maryland	31	690	3	1	Independent company	3	43		
District of Columbia	23	475	4					4	A battalion of coast artillery has recently been authorized by an act of Congress for the reorganization of the District of Columbia Militia, but the details of this organization have not yet been completed.
Virginia	63	1,494	8	4	Independent companies	12	262		
North Carolina	13	317	2	5	Corps	20	259		
South Carolina	22	540	4	2	Independent companies	5	97		
Georgia	13	278	3	4	Corps	14	170		
Florida	56	1,277	9	1	Independent company	3	64	3	Under date of Mar. 20, 1909, the adjutant-general of Florida stated that certain infantry organizations have signified a desire to be transferred to coast artillery, and that opportunity is being given them of making formal application for transfer. Steps have been taken to organize a company of coast artillery at Pensacola, but it has not yet been mustered into service.
Alabama	21	474	2	1	Corps	7	46	1	
Louisiana	17	358						2	Batteries A and B, Field Artillery, Louisiana National Guard, have been assigned to coast artillery duties, but their transfer has not yet been effected.
Texas	22	447	2	1	Independent company	3	60		

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California[a]	90	2,249	16	9	Corps	[b] 23	[b] 400	7	
Oregon	34	717	3	1	Independent company	3	60	3	Under date of Apr. 12, 1909, the adjutant-general of Oregon stated that it is intended to organize an additional company of coast artillery at Marshfield, Oreg., at an early date.
Washington[a]	96	2,272	12	5	Corps	25	320	3	Under date of Mar. 9, 1909, the adjutant-general of Washington informed the War Department that it is expected to organize 3 more companies of coast artillery before Sept. 1.
Ohio								4	A proposition has been informally presented to the War Department that the State of Ohio assign the Cleveland Grays, of the city of Cleveland, to coast-defense duties, and that they be assigned to fortifications on the Atlantic coast. The question is in suspension awaiting the action of the state authorities.
Total	902	21,204	126	122		454	6,864	29	

[a] The figures given as to the number of officers and men are approximate.

[b] Strength of 2 new companies not known.

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In reference to the militia reserve companies provided for in some of the States in excess of the number required to duplicate the regular coast artillery companies assigned to gun defense, it should be remembered that should these militia coast artillery reserves, in case of emergency, be called into the service of the United States under the provisions of section 4 of the militia law, these extra companies would be available for assignment to guns in coast fortifications which might be unmanned, owing to lack of regular coast artillery companies. These extra companies could be utilized also either as a second relief or in increasing the strength of other militia coast artillery companies so as to enable the latter companies fully to man the guns assigned them—it being noted that the strength of the militia companies is almost invariably less than is required to man either mortar or large caliber gun batteries.

Although the foregoing table makes a very satisfactory showing, so far as the number of militia reserve companies is concerned, it should be borne in mind that these companies, as a rule, have had very little coast artillery training, and that such troops, with one or two weeks' annual training at the seacoast forts and such instruction as can be given them in their armories at other times, can never be made equal to regular coast artillery troops, which are given daily drill at the forts for nine months every year and daily indoor instruction for the remaining three months. It is, however, confidently believed that if these reserves be given the annual one or two weeks' outdoor training as proposed and such indoor instruction in seacoast artillery work as may be practicable in their armories with the means provided by congressional appropriations for apparatus, they can, at the outbreak of war, render most valuable assistance, which could not otherwise be obtained from any source, and after a short time can be brought to a full measure of proficiency.

In the majority of States the organizations have as yet been able to get but little more than a start on the way toward a satisfactory status as coast artillery, and it would be unreasonable to expect much more at this time, considering the difficulties the new organizations have encountered in getting any kind of coast artillery instruments or apparatus for their armory work, the lack of trained instructors, the fact that the weapons they are to use are mounted in distant forts and can not be carried to or well duplicated in their armories, and the trouble they have in getting away, even for a few days, from their civil occupations to take part in the annual maneuvers with regular coast artillery at the guns. However, in a few States where the interest in coast artillery work has extended over a number of years, during which the organizations have had considerable armory training with improvised coast artillery instruments and apparatus, with a week or ten days' actual practice annually with heavy guns at near-by forts, the progress made and the degree of efficiency attained is quite remarkable, so much so, indeed, that it is confidently believed in the event of sudden war these organizations would now be able to give a good account of themselves. If they continue to progress as they have in the past they will be all that could possibly be hoped for in militia coast artillery reserves.

The great enthusiasm shown by these militia reserves, as a rule, in taking up coast artillery work under such trying circumstances, the cordial assistance that has everywhere been given them by the regular

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coast artillery during the annual coast artillery maneuvers, the help that has been recently given by Congress in the way of appropriations for armory equipment, and the interest and support that has been extended to them by the War Department, all lead to the belief that the now untrained militia coast artillerymen will eventually develop into a force which will prove of much value to the nation in the event of attack on our seacoast, and of which all who have taken part in its development may be justly proud.

In order to accomplish satisfactory results in the training of militia coast artillery, it is essential that the armories of these organizations be equipped with such coast artillery material as can be installed therein. The War Department has accordingly designed a set of dummy guns and mortars with all accessories pertaining to the service thereof for installation and use in militia coast artillery armories. Progressively, as organizations are provided with suitable armories by the States and as the instruction of the personnel of the separate organizations warrants, estimates should be submitted to Congress for funds necessary to provide these dummy guns and other articles of armory equipment. It is recommended that the necessary estimates to provide and install the equipment in all seacoast States be submitted to Congress at the earliest practicable time.

THE COAST ARTILLERY SUPPORTS.

Besides these trained regular and militia coast artillerymen required to furnish one complete manning detail for all our coast defenses constructed and proposed, it must be further remembered, as stated in my annual report for 1908, that there are certain other troops, armed as infantry, cavalry, and field artillery and designated "coast artillery supports," which will be absolutely necessary for the defense of the rear of the forts from attack by small parties of the enemy which may be landed from hostile ships for the purpose of making such attack while the ships engage the forts in front. Such supports were unnecessary in the days when seacoast forts were high-walled inclosures, with or without a surrounding moat and often with a counterscarp, redoubt, and glacis on the land front. The troops garrisoning such forts were relied on and expected to defend it from attack from any and all sides. At the present day, however, the so-called seacoast forts consist of a number of detached works, concrete and earthen embankments—often separated by considerable distances, and behind which the heavy guns are usually so mounted as to be hidden from the front, but completely open and exposed to view from the rear. It is therefore absolutely necessary for the efficient defense of a harbor that men other than those which man the gun and mine defenses of the forts should be provided to protect the forts and their accessories, fire-control stations, power plants, and searchlights from attack from the rear.

It is roughly estimated that about 55,000 field troops (infantry, cavalry, and field artillery) will be needed in time of war to make the coast fortifications in the States, the Isthmus, and the insular possessions secure against attacks such as may be expected from the rear. That is, it will require approximately the same number of field troops to give this protection as it does coast artillery to man and fight the defenses on the sea front of the fortifications.

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The mobile troops required to defend the rear of the defenses of our home ports, as well as a small portion of those believed to be necessary for the defense of Oahu, might well, it is considered, be furnished by the militia of the seacoast States concerned and by the militia of Oahu, but all such troops as are required for the defenses of our insular possessions other than Oahu and the major part of those required for Oahu must unquestionably be regular troops of the mobile army.

The present strength of the mobile army is, however, entirely too small to permit of the assignment of any regular troops as coast artillery supports, and it is therefore absolutely necessary, if a proper military policy is to be maintained by this Government, that the present authorized strength of the mobile army be increased by at least the number of troops needed for the defense of the rear of the forts in our insular possessions.

The need for troops for this purpose is most pressing in the island of Oahu. The strategic importance of this island, both with reference to our Pacific coast and the Far East, and the progress that has been made in the installation of the seacoast fortifications, render it highly advisable that early action be taken to provide the mobile army troops needed to place this island in a condition for successful defense. That the military importance of Oahu is appreciated by Congress is evidenced by the amount appropriated for fortification work, nearly $4,000,000, and by the appropriations toward the construction of a naval base that will involve an ultimate expenditure of about $10,000,000. While these fortifications are absolutely necessary as well as sufficient for the defense of the naval base and Honolulu against a purely naval attack, they are particularly vulnerable to attack from the rear, and it will be necessary to hold the entire island to protect them and also the naval base from such attack. The need of providing regular troops for this purpose is, in my opinion, so urgent as to make it the most pressing military necessity now confronting the United States; and I therefore earnestly recommend that a bill authorizing an increase in the present authorized strength of the mobile army for the purpose of furnishing the regular mobile army troops needed for the defense of the island of Oahu be prepared as soon as practicable, with a view to its submission to Congress at the next session.

Attention should be called to the fact that even if these recommendations for the increase of both the coast artillery and the mobile army are approved by the War Department and Congress should authorize the increase at its next session, it would be five years before the increase is consummated, assuming that a proviso such as that in the last artillery increase bill would be made in the bills regarding the appointment of the officers authorized; and that if the remaining half of the quota of regular coast artillery necessary to carry out the approved policy of the War Department and the remaining portion of the regular mobile army supports were then at once authorized by Congress it would take five more years to consummate the increase thus authorized. Under the best conditions it would therefore appear that it would take at least ten years to provide the quota of regular coast artillery required to carry out the policy of the War Department, and also to provide the regular mobile army supports needed for the defense of the rear of our

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insular forts and the defense of the island of Oahu. It is therefore believed it would be in the best interests of the nation if the matter of the preparation of the bills herein recommended were taken up by the War Department at once, and every endeavor thereafter made by the department to have these bills made law.

PRELIMINARY COURSE OF INSTRUCTION FOR OFFICERS APPOINTED TO THE COAST ARTILLERY CORPS.

The second lieutenants appointed from civil life to vacancies created by the act of January 25, 1907, have, as a rule, had little or no military training. In April, 1909, those appointed as the result of the competitive examination held the previous January were sent to Fort Monroe for a short course of instruction in the duties of their new position and the benefits obtained were so marked that all those appointed since have been similarly ordered to Fort Monroe for as long a time as could be devoted to the purpose.

These young officers are regularly attached to companies in the garrison and perform the corresponding duties and, in addition, are placed under a field officer of experience who gives them a thorough course of instruction in the various other duties exacted of subalterns, and in the manners and customs of the service. The effect of this instruction is immediate and the young officers leave for their permanent stations well grounded in their duties and ready to be of assistance at their new posts.

The graduates of the Military Academy this year who were assigned to the coast artillery are under orders to report at Fort Monroe on September 15 for a similar training in such garrison work as is not covered by the course at the Military Academy.

EXAMINATION OF OFFICERS FOR PROMOTION.

It is believed that no one thing has done more to raise the standard and increase the efficiency of officers of the army than the requirement that they shall pass successfully an examination before being promoted. Not only has a standard of proficiency been established, but officers have been led into habits of study beyond that needed for preparation for these examinations and the service schools have, in consequence, raised the standard to be attained by their graduates.

At the time the law went into effect in 1890, it was deemed expedient to limit examinations to lieutenants and captains and this is still in force. Whatever may have been the reason for this limitation at that time, it is believed that there is no longer any good reason for excepting field officers from the test, and that the good of the service now demands that majors and lieutenant-colonels be examined physically and mentally before promotion, and that only those found qualified for promotion receive advancement.

As to the necessity for this examination of field officers it may be stated that while the duties of senior officers of the Coast Artillery Corps do not, as a rule, demand the immediate application of the technical detailed knowledge necessary in the junior grades, they do, however, call for a high class of both physical and mental ability, both of which are susceptible of test by a proper examination, and it is believed that only by such an examination for promotion can the best type of field officers of coast artillery be insured. An early consideration of this question is therefore recommended.

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JOINT ARMY-MILITIA COAST-DEFENSE EXERCISES.

During the fiscal year 1909 and 1910 joint exercises were held in the following-named artillery districts for periods as shown:

Portland	August 2 to 11, 1909.
Portsmouth	July 12 to 17, 1909.
New London (Connecticut Militia)	July 15 to 24, 1909.
New London (New York Militia)	June 10 to 30, 1910.
Baltimore	September 4 to 14, 1909.
Chesapeake Bay	September 15 to 25, 1909.
Charleston	June 15 to 24, 1910.
Savannah	May 19 to 28, 1910.
Tampa	October 5 to 14, 1909.
Mobile	May 3 to 14, 1910.
New Orleans	August 1 to 12, 1909.
San Diego	September 4 to 18, 1909.
	June 11 to 18, 1910.
San Francisco	September 4 to 18, 1909.
	June 11 to 18, 1910.
Columbia	September 6 to 15, 1909.
Puget Sound	July 15 to 24, 1909.

The exercises of 1910, including those that have taken place since July 1, and which, therefore, are not listed above, show a marked improvement over those of preceding years in actual firing with the large guns. Heretofore but little has been done except subcaliber practice, but this year the greater part of all the militia organizations participating have had service practice unless weather conditions prevented. This practice has been at both fixed and moving targets, with both guns and mortars, and has been so successful that it is hoped that all organizations will participate another year.

The benefits of these joint exercises to both regular and militia coast artillery are unquestionable and marked. The War Department has published this year, as heretofore, extracts from the reports of both regular and militia officers participating in the exercises, and while progress and improvement are to be expected from year to year, an examination of these reports shows that in most of the States there is greater effort being made than ever before not only to make the most of the annual exercises, but to carry on the work in the local armories during the remainder of the year.

COAST ARTILLERY MATERIAL.

The material of our seacoast defenses may, it is thought, best be reported upon by grouping it in reference to the different localities in which it has been installed or to which it pertains, and then reporting upon that pertaining to each locality as grouped: (*a*) That pertaining to home ports; (*b*) that pertaining to insular ports; (*c*) that pertaining to the Isthmian Canal ports.

(*a*) MATERIAL OF THE HOME PORTS.

In the report of February 1, 1906, the national coast defense board, ordinarily called the "Taft Board," which designation will hereinafter be used, reported as having been expended upon home ports for our modern system of coast defense as recommended by the Endicott Board in 1886, and as necessary to complete the system, with such

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accessories and such additional defenses as were by it considered necessary to bring the system up to date, as follows:

Expended prior to report of Taft Board, February 1, 1906	$72,750,584
Estimate of Taft Board for completing defenses	50,879,339
Total cost	123,629,923

The amount, $72,750,584, reported by the Taft Board as expended prior to February 1, 1906, should be increased by $2,098,368, the unallotted balances of appropriations at the time the report was submitted (guns and carriages, $1,428,346; fire control, $653,022; and searchlights for submarine mines, $17,000; total, $2,098,368), and $7,069,564 expended for ammunition not included in the report, a total of $9,167,932.

This increase will give as follows:

Expended prior to report of Taft Board	$81,918,516
Estimate of Taft Board for completing defenses	50,879,339
Total cost	132,797,855
Since the Taft Board reported there has been appropriated for the defenses of home ports considered by that board	8,613,524
There has also been appropriated for the purchase of land at San Pedro, Cal., a port not considered by the Taft Board	250,000
Adding these amounts to the amount already appropriated	81,918,516
Gives as the total amount expended on home ports	90,782,040

The amount, $50,879,339, estimated by the Taft Board for completing the defenses of home ports, may be subdivided as follows:

(a) Estimated cost of completing defenses for which guns are now provided	$22,465,970
(b) Estimated cost of completing additional defenses recommended by the board (including purchase of land for additional defenses, artificial island and breakwater in Chesapeake Bay, for experimenting with automobile torpedoes, and for cable boats)	28,413,369
Total	50,879,339

For several years past it has been stated in the annual report of the Chief of Coast Artillery that the expenditures for the defenses in home ports have been mainly for guns and their emplacements, and it has been uniformly recommended that the submarine mine equipment of these ports, and the accessories for the guns and mines already installed—fire-control apparatus, searchlights, power plants, and ammunition—be provided before more guns are installed or new defense projects begun. This for the reason that, considering the present condition of home ports, the provision of these accessories would secure the greatest measure of public safety at the least cost; and, what is more, that without these accessories the immense sum, about $70,000,000, expended on the guns installed, would be wasted, as these guns without their corresponding accessories would be of no more value in the defense of the ports in which they are mounted than so many dummies.

In consequence of these recommendations the annual estimates of the Secretary of War and the appropriations for coast defenses since the report of the Taft Board have been mainly for submarine mines and for accessories for guns and mines already installed. As

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it is believed that it will be to the best interests of the Government if this policy be continued, it is recommended that all estimates submitted to Congress for defenses for home ports have this in view until all the guns and mines now installed are provided with the accessories estimated for by the Taft Board.

Considering the amount		$8,613,524
appropriated since the report of the Taft Board for the defenses of the home ports considered by that board, there were appropriations or unexpended balances of appropriations made prior to the Taft Board which were not considered by that board, but which were or have been since devoted to projects included in the board's estimates, amounting to		1,483,823
There has been transferred from insular funds for material supplied		10,725
making a total amount of		10,108,072
utilized or available for providing defenses for the home ports, since the report of the Taft Board.		
Of this total amount the following amounts have been devoted to purposes not covered by the Taft Board estimates for existing defenses:		
Guns, carriages, and emplacements	$906,825	
Maintenance, etc., submarine defense	261,169	
Additional mine planter and equipment auxiliary planters	233,400	
making a total amount of		1,401,394
Deducting this amount from the total of		10,108,072
there remains		8,706,678
which has been devoted to the projects covered by the Taft Board for completing the existing defenses.		
These estimates amount to		22,465,970
and deducting therefrom the amount		8,706,678
gives		13,759,292
as the remainder of the Taft Board estimate of the cost of completing the defenses of home ports for which guns, carriages, and emplacements were provided.		
Due to changes in the actual cost of material and construction from the cost estimated, and to an error in multiplication in the Taft Board figures, the above remainder of the board's estimate for completing the defenses of the home ports for which guns, carriages, and emplacements are provided should be increased by		710,515
which gives		14,469,807
as the present estimate for completing the existing defenses of home ports.		

The amounts shown above as unallotted balances, as devoted to purposes not covered by the Taft Board estimates, and as necessary to increase the Taft Board estimates, are explained below in detail under headings relating to the different elements of existing defenses.

The following table gives for the various elements of the defenses the amounts expended for the existing defenses of home ports, the amounts required to complete these defenses, and the amounts required to provide the additional defenses recommended by the Taft Board:

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Seacoast defenses, home ports.

	Guns, carriages, and emplacements.	Submarine mines.	Power plants.	Searchlights.	Fire control.	Ammunition.	Total.
Defenses for which guns, carriages, and emplacements are now provided:							
Expended previous to report of Taft Board Jan. 25, 1886, to Feb. 1, 1906	$64,922,843	$4,935,762	.....	$800,000	$4,190,347	$7,069,564	$81,918,516
Appropriated since report of Taft Board	1,399,325	2,203,000	$448,888	805,000	2,317,311	1,440,000	8,613,524
Total cost to date	66,322,168	7,138,762	448,888	1,605,000	6,507,658	8,509,564	90,532,040
Required to complete	.....	1,011,353	3,962,753	1,465,000	3,908,466	4,117,000	14,464,572
Total cost	66,322,168	8,150,115	4,411,641	3,070,000	10,416,124	12,626,564	104,996,612
Cost of additional defenses proposed by Taft Board	17,126,900	356,996	804,390	699,000	2,269,271	2,513,186	23,769,743
Total cost of all defenses in United States, completed	83,449,068	8,507,111	5,216,031	3,769,000	12,685,395	15,139,750	128,766,355
Taft Board estimate for—							
Additional land for completing gun defense							1,493,861
Artificial island in Chesapeake Bay							2,600,000
Experimenting with automatic torpedoes							50,000
Four cable boats							505,000
Appropriated by act of Mar. 3, 1909, for land at San Pedro, Cal							250,000
Grand total							133,665,216

The amount, $8,863,524, appropriated for the defense of home ports since the Taft Board report is itemized as follows:

	Act June 25, 1906.	Act Mar. 2, 1907.	Act May 27, 1908.	Act Mar. 3, 1909.	Act June 23, 1910.	Total.	
For batteries:							
(a) Emplacements	.....	.....	$300,000	$5,064	.....	$305,064	.....
(b) Modernizing emplacements	$150,000	$100,000	165,261	100,000	.....	515,261	.....
(c) Guns and carriages	174,000	132,000	273,000	.....	.....	579,000	$1,399,325
For submarine mine defense:							
(d) Mine structures	175 000	175,000	175,000	100,000	.....	625,000	.....
(e) Mine material	300,000	250,000	310,000	310,000	$58,000	1,228,000	.....
(f) Mine planters	.....	175,000	175,000	.....	.....	350,000	2,203,000
For power plants	.....	.....	348,888	100,000	.....	488,888	488,888
For searchlights	125,000	210,000	210,000	210,000	50,000	805,000	805,000
For fire control	700,000	900,000	270,256	247,055	200,000	2,317,311	2,317,311
For ammunition	325,000	325,000	325,000	325,000	140,000	1,440,000	1,440,000
Total	1,949,000	2,267,000	2,552,405	1,397,119	448,000	8,613,524	8,613,524
For the defense of San Pedro, Cal., a port not recommended by the Taft Board							250,000
							8,863,524

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The existing condition of the defenses of the home ports for which guns, carriages, and emplacements are now provided, so far as relates to the different elements itemized above, is as follows:

The amount appropriated for emplacements, guns, and carriages for the defenses of home ports since the report of the Taft Board is—

Emplacements:		
(a) New battery, Puget Sound	$300,000	
(b) Remodeling old battery	5,064	
		$305,064
Modernizing emplacements		515,261
Guns and carriages:		
(a) New battery, Puget Sound	273,000	
(b) Completing 15-pounders authorized prior to report of Taft Board	174,000	
(c) Construction type 14-inch gun	132,000	
		579,000
Total		1,399,325

The two items, $300,000 for new emplacements and $273,000 for new guns and carriages, total $573,000, should be deducted from the estimate	17,699,900
of the Taft Board for guns and emplacements for additional defenses; subtracting this amount	573,000
leaves	17,126,900
as the Taft Board estimate for guns and emplacements for additional defenses yet to be appropriated for.	

The estimate of the Taft Board for modernizing older emplacements was $492,500. The work contemplated by this estimate consisted only in the widening of the platforms. It did not include the installation of powder hoists and other essential modifications, so that while the appropriations for this purpose to date, $515,261, exceed the estimates, the work is still only partially completed. Detailed estimates for the work have been prepared by the Chief of Engineers, which show that $1,500,000, in round numbers, is still required to bring the older batteries of large-caliber guns up to the standard of efficiency secured by the latest type of emplacement.

The estimate of the Taft Board for completing the mine defense of home ports was		$3,889,993
From this amount the following items, since included in other estimates, should be deducted:		
For searchlights for mine fields	$669,000	
For mine planters and other boats	279,000	
For fire-control apparatus	15,522	
		963,522
This leaves		2,926 471
as a revised estimate for completing the submarine mine defenses of home ports.		

Of this $2,926,471, $864,623 relates to *submarine mine structures* under the Engineer Department and $2,061,848 to *submarine mine material* under the Ordnance Department.

Considering the estimate		$864,623
for completing the submarine mine structures of home ports there has been appropriated for mine structures since the report of the Taft Board	$625,000	
This amount should be reduced by	65,141	
for excess in cost of structures built over estimates.		559,859
This leaves		304,764
as the estimate for completing mine structures of home ports.		

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This amount, $304,764, may be itemized as follows:			
For structures at constructed defenses of home ports		$236,764	
For structures for additional defenses for Chesapeake Bay		68,000	
Total		304,764	
Considering the estimate			$2,061,848
for submarine mine material for home ports, there has been appropriated for mine material since the Taft Board reported	$1,228,000.00		
which should be increased by—			
Appropriations prior to Taft Board	30,800.80		
Cost of mine cases supplied insular ports	10,725.00		
Savings in purchase over estimate	13,989.00		
		$1,283,514.80	
and reduced by—			
Cost of maintenance of mine equipment	215,284.78		
Cost of torpedo depot administration	45,884.61		
Cost of contingencies	682.41		
Cost of equipment of auxiliary mine planters	23,400.00		
		285,251.80	
			998,263
This leaves			1,063,585
as the estimate for completing mine material of home ports.			
This amount, $1,063,585, may be itemized as follows:			
For material for constructed defenses of home ports			774,589
For material for additional defenses for Chesapeake Bay			288,996
Total			1,063,585

Regarding submarine mines and the necessity for completing this important element of the defense of our home ports, it has been stated by me in a former annual report that—

Recent war has clearly shown the value of submarine mines as an element of harbor defense. If a harbor be defended by an efficient system of mines and the requisite guns for their protection against countermining, sweeping, or other methods of removing them, it is not believed that any enemy, however enterprising, will ever attempt to force an entrance into a harbor with large ships. * * * Our system of submarine mines is practically perfect as a war weapon. * * * When it is considered that if the mine defense of the country is completed the navy would be comparatively free to perform its true function of seeking the enemy at sea, unhampered by the thought of poorly protected harbors at home, it will be apparent that this completion should be accomplished at the earliest possible moment.

More than this, we can not afford to wait for war before completing our mine defense, but must be prepared beforehand; for unless we are thus prepared no amount of money made available at the outbreak of war could procure mine material in time to be of service in mine defense against an active, enterprising enemy. Essential parts of this material, such as the cables, mine cases, and electrical apparatus, can not be bought in open market, but must be manufactured to order, and after having been ordered it requires months to fill the orders.

If confronted suddenly by war, only such material as is on hand can be utilized for immediate mine defense, and if any essential part of the mine system is lacking, the whole mine defense must fail. * * * The complete mine equipment of every harbor to be mined should be kept on hand ready to be planted, and it should be made possible to mine effectively every harbor within forty-eight hours.

Since the above extract was written Congress has authorized the requisite personnel to handle efficiently the mine defense of every fortified home port, and the requisite boats for planting the mines have been provided from appropriations and through the courtesy of the Quartermaster's Department and of the Secretary of the Navy and of the Secretary of Commerce and Labor. The personnel being

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trained, the boats for planting the mines provided, it only remains to complete a comparatively few mine structures and provide a comparatively small quantity of mine material to complete the submarine mine defense of every home port.

It is therefore earnestly recommended that there be appropriated the amount, $189,964, necessary for completing the mine structures of all home ports, except the entrance to Chesapeake Bay and Galveston Harbor, and the amount, $783,358, of which $58,000 is required annually for the maintenance of the present mine equipment and administration of the torpedo depot, and the balance, $725,358, for the mine material required for all home ports except Kennebec River, Chesapeake Bay, and Galveston Harbor—a total amount of $973,322, which is less than one-tenth of the cost of a modern battle ship.

The estimate of the Taft Board for power plants for the defenses of home ports is itemized as follows:

Central plants for existing defenses	$2,501,182	
Reserve plants for existing defenses	1,910,459	
		$4,411,641
Central plants for additional defenses	561,482	
Reserve plants for additional defenses	242,908	
		804,390
Total cost		5,216,031

The urgency of the need of more electric power and light in coast defenses was indicated in the report of the Taft Board and has been repeatedly indicated in former annual reports of the Chief of Coast Artillery. Notwithstanding this fact, there has been appropriated for power plants for home ports since the Taft Board made its recommendations regarding the providing of these plants but $448,888, or a trifle more than one-sixth of the amount estimated by the board for central plants for existing batteries alone.

It is therefore evident that our home ports are woefully lacking in this important adjunct to their defenses, and it is again most earnestly recommended that Congress be urged to make more liberal appropriations for these plants.

The appropriation carried by the act of May 27, 1908, amounting to $348,888, was expended in providing central plants for Forts Casey, Stevens, Barry, Baker, and Winfield Scott.

The appropriation carried by the act of March 3, 1909, amounting to $100,000, was expended in procuring 15 25-kilowatt gasoline sets, which are being installed at the following forts: Rodman, 1; Michie, 1; Terry, 3; Whitman, 1; Foster, 1; Du Pont, 1; Armistead, 1; Moultrie, 1; Dade, 1; Canby, 1; and Taylor, 3.

By the latter course it was possible to provide best for the greatest number of places having the most pressing needs.

The following table gives, for the home forts, the capacity of the central plants now installed, the additional power needed for existing defenses, and the cost of the latter:

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Central plants for existing batteries for home forts.

Forts.	Capacity in kilowatts of plants now installed.	Capacity in kilowatts of additional power required.	Cost of additional power as estimated by Taft Board.
Popham, Me		15	$3,590
Lyon, Me		5	3,120
McKinley, Me	150	30	7,313
Levett, Me	150	40	9,001
Preble, Me	13	35	36,391
Williams, Me	100		
Foster, Me		50	47,414
Stark, N. H		25	4,909
Constitution, N. H		25	34,618
Heath, Mass	10	50	16,115
Banks, Mass	7	15	3,590
Strong, Mass	85		
Standish, Mass	7	100	58,872
Warren, Mass	150		
Andrews, Mass	20	35	31,801
Revere, Mass	15	50	25,355
Rodman, Mass	11	35	43,129
Adams, R. I	120		49,500
Wetherill, R. I	7	100	104,978
Getty, R. I		50	60,258
Greble, R. I	60		
Kearny, R. I		25	5,074
Mansfield, R. I		50	50,795
H. G. Wright, N. Y	75		
Michie, N. Y	52	70	74,861
Terry, N. Y	48	50	80,322
Tyler, N. Y			4,909
Slocum, N. Y	5	35	28,414
Schuyler, N. Y	75	70	27,500
Totten, N. Y	100	100	53,178
Wadsworth, N. Y	198	35	11,550
Hamilton, N. Y	212	35	11,550
Hancock, N. J	197		
Delaware, Del	32	25	4,909
Mott, N. J	60	100	44,946
Du Pont, Del	40	50	45,362
Howard, Md	87	70	42,942
Smallwood, Md	47	15	3,590
Carroll, Md	22	25	4,909
Armistead, Md	21	25	4,909
Monroe, Va	120	200	113,919
Washington, Md	153		
Hunt, Va	70	35	52,099
Caswell, N. C	27	100	53,206
Sumter, S. C	10	15	3,590
Moultrie (east), S. C	10	70	7,150
Moultrie (west), S. C	10	70	66,881
Screven, Ga	7	100	96,345
Pulaski, Ga		5	2,487
Taylor, Fla	25	100	64,989
Dade, Fla	20	100	55,673
De Soto, Fla		15	3,590
Pickens, Fla	98	100	52,368
McRee, Fla	30	25	4,909
Morgan, Ala	70	100	73,931
Gaines, Ala	20	15	3,590
St. Philip, La	60	70	55,432
Jackson, La	60	25	4,909
San Jacinto, Tex		35	53,684
Travis, Tex		25	4,909
Crockett, Tex		35	31,330
Rosecrans, Cal	60	50	17,358
Miley, Cal	30	50	44,452
Scott, Cal	256		
Mason, Cal	3	15	3,590
McDowell, Cal	9	25	35,234
Baker, Cal	53		
Barry, Cal	50		
Stevens, Oreg	110		
Columbia, Wash	28	35	51,200
Canby, Wash		20	6,078
Worden, Wash	225	150	50,000
Flagler, Wash	235	150	50,000
Casey, Wash	170		
Middle Point, Wash		15	3,590
Ward, Wash		50	46,127
Total	4,195	3,240	2,152,294

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The estimate of the Taft Board for searchlights for the gun defense of home ports, constructed and proposed, was		$2,897,700
This amount must be increased by the amount estimated by the board for mine lights which was carried in the report of the board in its estimate for submarine defenses, but which has since been subtracted from that item and added to the board's estimate for gun lights.		669,000
This amount must also be increased by owing to a typographical error in the board's estimate for gun lights for Boston Harbor.		186,300
And also increased by owing to an error in the board's estimate for mine lights.		16,000
The corrected estimate for searchlights for both gun and mine defense of home ports is therefore		3,769,000
Of this amount ($3,769,000) was estimated for searchlights for additional defenses.		699,000
Subtracting, there remains as the estimate for lights for existing defenses.		3,070,000
This amount has been reduced by appropriated for searchlights prior to the report of the board,	$800,000	
and by appropriated since the board reported.	805,000	
		1,605,000
There then remains as the estimate for completing the searchlight equipment of existing defenses in home ports, which amount is about one-half of the original estimate for these lights; or the searchlight equipment of home ports is therefore about one-half completed.		1,465,000

The total estimate of $3,769,000 contemplated providing 155 60-inch lights at $17,000 each, and 126 36-inch lights at $9,000 each. Of these 60-inch and 36-inch lights, 39 60-inch and 4 36-inch lights were intended for additional defenses, and 116 60-inch and 122 36-inch lights were for existing defenses.

The Taft Board stated in its report that the estimates submitted were based on an assignment of two searching lights to each battle commander and an illuminating light to each fire commander without providing any reserve lights; the board also stated:

> Whether a greater number of lights will be required can only be determined after careful and extensive experiments.

As stated in last year's report, a series of experiments by means of portable searchlights has been conducted in the most important of the fortified harbors of the Atlantic, Pacific, and Gulf coasts with a view to determining the actual number and kind of searchlights required for both gun and mine defense as well as the proper positions therefor. As was to be expected, the result of the experiments showed variations in the number and size of lights required for different harbors from that obtained by the general principle applied by the Taft Board, but the total number of lights for the United States, and the cost of them, is practically the same in both cases.

Attention must again be called to the importance of providing the searchlights still needed for the existing defenses of home ports; they are absolutely necessary for disclosing the presence of an enemy's ships in case of a night attack on a fortified harbor. With them the ships may be so illuminated as to render the work of the position-finding system and the dependent defense of the harbor almost as efficient at night as during day; without them the gun defenses are practically powerless at night, and a run-by could then be prevented only by the mines, which could be removed with comparative

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ease if their fields were not illuminated so that they could be defended by the guns.

The estimate of the Taft Board for fire control for the defenses of home ports, constructed and proposed, was		$9,463,053
Of this amount there was estimated for additional defenses		2,269,271
Leaving for defenses constructed or appropriated for		7,193,782
This amount has been reduced by	$653,022	
an unallotted balance from appropriation for fire control prior to the report of the Taft Board, and by	2,317,311	
appropriated since the board reported, and also by	314,983	
savings made on actual cost of construction and installation over estimates.		3,285,316
There then remains		3,908,466

as the estimate for completing the fire-control equipment of existing defenses in home ports, which amount is a little more than half the original estimate of the Taft Board for fire control; or the fire-control equipment for the existing defenses of home ports is not quite half completed.

With the amounts heretofore appropriated what is known as the "Standard Fire Control System" has been or is being installed in the harbors of Portland, Boston, New York, Puget Sound, San Francisco, the Columbia River, and the eastern entrance to Long Island Sound, and the "provisional system" in the remaining fortified home ports.

The "Standard Fire Control System," as embodied in the type installation of 1909, is efficient and satisfactory. The precision of fire-control instruments has recently been so increased that the probable error in their observations is well within the probable error of the guns, and a degree of certainty and directness in the transmission of fire-control data has been reached which at one time seemed almost impossible of accomplishment. There can now be no doubt in the mind of anyone conversant with the standard system of its accuracy, of the permanence of its essential features, or of what would be its value in case of war.

The "provisional systems" have been established for all batteries that are manned in home ports other than those in which the standard system has been installed. These provisional systems were established in accordance with War Department orders of January, 1906, for the following object:

In order that each battery in commission may be provided with a temporary system of fire control sufficient for drill and artillery practice, pending the final installation of the permanent system.

These provisional installations having been established at different times, and from means available, are not uniform in type, part being according to the latest improved plans and type and others of obsolete plans and type. They provide, however, a means by which all the regular coast artillery garrisoning the ports wherein they are installed, as well as the militia coast artillery reserves for those ports, can be instructed in fire-control apparatus and work. The material of these provisional systems will be utilized as far as practicable in the installation of standard systems when funds for the latter are available. Some of the provisional systems will be of little value in making standard installations, but others by the addition of possibly 20 per

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cent of new standard material may be fully changed into the standard systems. The main difference between the standard and the provisional system is that in the former the lines of communication are underground cables fully protected, while in the latter the lines are overhead wires; besides this the material of important links in the provisional system is temporary, and not adapted to or suitable for war conditions.

When it is remembered that the value of a gun or mortar of given caliber and power is dependent upon its hitting capacity alone; that at long and mid ranges the hitting capacity of a gun may be more than quadrupled by the substitution of an accurate fire-control system for an obsolete system; that our standard system is exceedingly accurate and most satisfactory, and that without a fire-control system the mortar, one of the valuable elements of coast defense if efficiently handled, is absolutely worthless, the necessity for the prompt completion of the standard fire-control installation for all guns and mortars already mounted in our home ports, and not provided with any system of fire control whatever, becomes strikingly evident.

The estimated cost of completing the fire-control equipment of existing defenses in home ports is, as above shown, $3,908,466. The existing gun and mortar defenses in these home ports have, as already stated, cost about $70,000,000, and, as also already stated, a large number of batteries have no fire-control system whatever. In case of war, therefore, unless some system of directing the fire of these gun and mortar batteries, already existing and without means of directing their fire, is provided, a seriously large percentage of the $70,000,000 expended on gun and mortar batteries in home ports will have been wasted.

The amounts required to complete the fire-control installations of home ports are indicated in the following table:

Taft Board estimates for fire control for existing defenses in home ports.

Ports.	Amount required for engineer work.	Amount required for signal corps work.	Amount required for ordnance work.	Total amount required.
Kennebec River	.....	$3,200	.....	$3,200
Portsmouth	$88,773	41,700	$10,000	140,473
New Bedford	155,050	16,000	10,000	181,050
Narragansett Bay	438,500	124,000	10,000	572,500
Delaware River	138,510	89,600	10,000	238,110
Baltimore	252,097	.....	10,000	262,097
Hampton Roads	246,303	.....	10,000	[a] 256,303
Potomac River	44,866	.....	10,000	54,866
Cape Fear River	120,801	41,600	10,000	172,401
Charleston	117,925	64,000	10,000	191,925
Savannah	128,752	51,200	10,000	189,952
Key West	216,782	54,400	10,000	281,182
Tampa	201,743	38,400	10,000	250,143
Pensacola	156,457	51,600	10,000	218,057
Mobile	334,277	44,600	10,000	388,877
Mississippi River	105,840	44,800	10,000	160,640
Galveston	192,255	44,800	10,000	247,055
San Diego	77,235	22,400	.....	99,635
Total	3,016,166	732,300	160,000	3,908,466

[a] Estimate to complete.

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The estimate of the Taft Board for reserve ammunition for all guns, constructed and proposed, in home ports was		$6,571,301
The amount should be increased by	$1,582,000	
due to the cost of certain items which were not considered in the estimate of the board; and should be decreased by	83,115	
on account of the decreased cost of certain components of the ammunition.		
making a net increase of		1,498,885
This gives		8,070,186
as the revised estimate for reserve ammunition for all guns, constructed and proposed, in home ports.		
Of this amount there is estimated for reserve ammunition for additional batteries	$2,513,186	
and there has been appropriated since the report of the Taft Board	1,440,000	
		3,953,186
Subtracting these amounts there remains		4,117,000
as the estimate for reserve ammunition to complete the supply for all existing batteries in home ports.		

The appropriation of last year for reserve ammunition for home ports was only $140,000. For the preceding four years the annual appropriation was $325,000. If appropriations are continued at even the latter rate, it will require thirteen years to complete the full supply of reserve ammunition for all batteries now constructed in home ports, and eight years more, or twenty-one years in all, to complete this supply of ammunition for all batteries constructed and proposed in home ports.

As to the value of guns without ammunition no remarks are necessary.

(*b*) MATERIAL OF THE INSULAR PORTS.

In its report of February 1, 1906, the Taft Board reported as having been expended upon the seacoast defenses of the insular ports, and as necessary to complete the defenses of these ports, as follows:

Appropriated prior to report of Taft Board, Feb. 1, 1906	$2,254,920
Cost of 13 12-inch guns, paid for from appropriations previously made for guns, mortars, and carriages for home ports and not required therein	565,045
Cost of 5 10-inch guns, paid for from appropriations previously made for guns, mortars, and carriages for home ports and not required therein	142,500
Estimate of Taft Board for completing defenses of insular ports	19,873,895
Total cost	22,836,360

The amount, $2,254,920, reported by the Taft Board as having been appropriated prior to February 1, 1906, should be increased by $150,000, the amount which was on hand and unallotted on that date for submarine mine material and which was not included in the figures given in the report, making the correct amount appropriated prior to the report of the Taft Board $2,404,920.

Making this increase, we have—

Appropriated prior to report of Taft Board	$2,404,920
Cost of 13 12-inch and 5 10-inch guns, paid for from appropriations previously made for guns, mortars, and carriages for home ports and not required therein	707,545
Estimate of Taft Board for completing defenses of insular ports	19,873,895
Total cost	22,986,360

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Considering the amount			$19,873,895
estimated by the Taft Board for completing the defenses of the insular ports, this amount should be decreased by			11,824,852
the amount appropriated since the Taft Board reported,			
leaving			8,049,043
as the Taft Board estimated cost of completing the defenses of the insular ports.			
This estimate should be increased by	$666,730		
for increased cost of emplacements; and by	413,885		
for increased cost of guns and carriages, due largely to revision of projects of Taft Board for certain localities; and by	326,600		
for increased cost of searchlights, due to increase in number estimated for, increased cost per light, and transfer of mine lights from heading "Submarine mine defense," where they were carried by the Taft Board to this heading; and by	652,508		
for increased cost of submarine mine defenses, due to revision of project for Manila Bay; and by	737,712		
for increased cost of ammunition, due to error in estimates of the Taft Board as to cost of ammunition.			
Total increase		$2,797,435	
Decreased by	$66,931		
for decreased cost of power plants, and by	250,133		
for decreased cost of fire-control installations.			
Total decrease		317,064	
Making the amount by which the estimate of the Taft Board should be increased			2,480,371
and the revised estimate of cost of completing the defenses recommended by the Taft Board for all insular ports			10,529,414
Of this amount there is required for completing the defenses of Guantanamo, San Juan, Kiska Island, and Guam			6,700,455
leaving			3,828,959
as the amount required to complete the defenses of Manila and Subic Bays, Honolulu, and Pearl Harbor.			

The following table gives in detail the amounts expended for the existing defenses of the insular ports, the amounts required to complete the additional defenses recommended by the Taft Board, and the total estimated cost of all defenses, provided and projected, for the insular ports:

Seacoast defenses, insular ports.

	Guns, carriages, emplacements, and sites.	Submarine defense.	Power plants.	Searchlights.	Fire control.	Ammunition.	Total.
Expended prior to report of Taft Board	$2,138,920	$150,000	.....	.....	$16,000	$100,000	$2,404,920
Cost of 13 12-inch and 5 10-inch guns, paid for from appropriation made prior to report of Taft Board for guns, mortars, and carriages for the United States and not required therein.	707,545	.....	.....	.....	.....	.....	707,545
Expended since report of Taft Board	7,794,000	1,260,060	$283,292	$462,500	825,000	1,200,000	11,824,852
Total cost to date	10,640,465	1,410,060	283,292	462,500	841,000	1,300,000	14,937,317
Remaining to be appropriated to complete the defenses recommended by the Taft Board.	5,219,600	1,160,088	438,490	453,100	820,424	2,437,712	10,529,414
Revised estimate of total cost of all defenses, provided and projected, of insular ports	15,860,065	2,570,148	721,782	915,600	1,661,424	3,737,712	25,466,731

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The amount, $11,824,852, appropriated for the defenses of the insular ports since the Taft Board reported is itemized as follows:

	Act June 25, 1906.	Act Mar. 2, 1907.	Act May 27, 1908.	Act Mar. 3, 1909.	Act June 23, 1910.	Total.	
Batteries:							
(a) For emplacements	$410,000	$700,000	$1,359,000	$1,349,200	$800,000	$4,618,200	$7,794,000
(b) For guns and carriages	400,000	400,000	704,000	547,000	1,124,800	3,175,800	
Submarine defenses:							
(c) For mine structures	.....	200,000	129,000	.....	.....	329,000	1,260,060
(d) For mine material	.....	205,440	351,620	.....	.....	557,060	
(e) For mine planters and launches	.....	.....	374,000	.....	.....	374,000	
(f) For power plants	.....	.....	135,000	103,292	45,000	283,292	283,292
(g) For searchlights	.....	30,000	227,500	66,000	139,000	462,500	462,500
(h) For fire control	32,000	100,000	243,000	250,000	200,000	825,000	825,000
(i) For ammunition	100,000	50,000	250,000	500,000	300,000	1,200,000	1,200,000
Total	942,000	1,685,440	3,773,120	2,815,492	2,608,800	11,824,852	11,824,852

The present condition of the defenses of the insular ports, considering separately the different elements itemized above, is as follows:

The estimate of the Taft Board for emplacements for the insular ports was		$7,515,670
Of this amount		2,133,000
was estimated for emplacements for Guantanamo, San Juan, Guam, and Kiska Island.		
Subtracting, there remains		5,382,670
as the estimate of the Taft Board for emplacements for Manila and Subic Bays, Honolulu, and Pearl Harbor.		
This amount has been reduced by	$4,618,200	
appropriated since the report of the Taft Board, and increased by	666,730	
on account of increase in actual cost of construction over estimate.		3,951,470
There thus remains		1,431,200
as the estimate for completing the emplacements for Manila Bay, Honolulu, and Pearl Harbor—all emplacements for Subic Bay having been completed from the amounts heretofore appropriated.		
Of this amount, $1,431,200, an estimate will be submitted to Congress this year for $1,319,000. This latter amount is made up of the following items:		
For completion of engineer work on El Fraile Island	$300,000	
For additional construction, Carabao Island	100,000	
For projected emplacements on Caballo Island	769,000	
Total for completion engineer work, Manila Bay	$1,169,000	
For completion of emplacements under construction at Honolulu and Pearl Harbor	150,000	
Total estimate to be submitted this year		1,319,000
Subtracting, this leaves		112,200
for construction additional emplacements Pearl Harbor, to be estimated for in future.		

From the above it is seen that past appropriations for emplacements in the insular possessions have been sufficient to complete the emplacements for Subic Bay and the greater part of the work for Manila Bay, Honolulu, and Pearl Harbor, or about 75 per cent of the total work required at the four localities mentioned. The completion of this remaining work is regarded as of great importance as the armament constructed or to be constructed from appropriations already made will not afford a reasonably secure defense for these localities.

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The estimate for the construction of emplacements for the insular possessions submitted to Congress at its last session included an item of $450,000 for the completion of the engineer work on El Fraile Island, and an item of $769,000 for the projected emplacements on Caballo Island, or a total for the two items of $1,219,000. To cover these items Congress at its last session appropriated $800,000, and authorized contracts to be entered into involving an additional expenditure of $419,000, or a total of $1,219,000 appropriated and authorized. Subsequently to the hearings before congressional committees on these items, the officer charged with the construction of emplacements in Manila Bay reported that the cost of completion of the emplacements under construction on Corregidor and Carabao islands will be $650,000 in excess of the amounts originally estimated and appropriated for these emplacements, and that that amount will be needed during the current fiscal year to continue the work. It has, therefore, been deemed advisable by the Secretary of War in the interests of economy and expedition in the completion of the fortifications to allot that amount, $650,000, to the continuance of work on these emplacements from the $800,000 appropriated at the last session of Congress instead of to the initiation of work on Caballo Island and to allot the remaining $150,000 to the work on El Fraile Island, leaving the $300,000 remaining to complete the work on the latter island and the full amount required for the construction of emplacements on Caballo Island, $769,000, to be resubmitted to Congress this year. The increase in cost of the emplacements on Corregidor and Carabao islands over the amount of the estimates is due to the fact that the original estimates were necessarily of an approximate character on account of the lack of data as to the character of sites and the cost of battery construction in the Philippine Islands.

No estimates were submitted to Congress last year for emplacements in the Hawaiian Islands. The estimates to be submitted this year include an item of $150,000 to complete the emplacements now under construction at Honolulu and Pearl Harbor from appropriations made heretofore, the cost of these emplacements having been found to exceed the original estimates by that amount for the same reasons as stated above in the case of the emplacements under construction on Corregidor and Carabao islands.

The estimate of the Taft Board for guns and carriages for the insular ports was		$4,417,315
Of this amount was estimated for guns and carriages for Guantanamo, San Juan, Guam, and Kiska Island.		1,346,800
Subtracting, there remains as the estimate of the Taft Board for guns and carriages for Manila and Subic Bays, Honolulu, and Pearl Harbor.		3,070,515
This amount has been reduced by appropriated since the report of the Taft Board and increased by on account of increase in actual cost of construction over estimates.	$3,175,800 413,885	
Or a net reduction of		2,761,915
Subtracting there remains as the estimate for completing the guns and carriages for Manila Bay and Pearl Harbor—all guns and carriages for Subic Bay and Honolulu having been covered by past appropriations.		308,600

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Of this amount, $308,600, an estimate will be submitted to Congress this year for			$225,000
to complete the armament for Caballo Island for which a partial appropriation was made at the last session of Congress.			
This leaves			83,600
for armament for additional batteries at Pearl Harbor to be estimated for in future.			

The appropriations for armament in the insular possessions made by Congress at its last session included, in addition to one of $624,800 for the completion of the turrets for El Fraile Island, an appropriation for guns and carriages of $500,000 cash with a contract authorization of $225,000 additional. The appropriation of $500,000 cash will provide for the completion of the guns and carriages for El Fraile Island and for the initiation of work on the guns and carriages for Caballo Island. The completion of the carriages for the latter island will entail an appropriation of the $225,000 for which a contract authorization was granted at the last session of Congress and that amount is included in the estimates of this year.

The estimate of the Taft Board for completing the mine defenses of insular ports was			$1,767,640
This amount should be decreased by the following items since included in other estimates:			
For searchlights for mine fields	$174,000		
For mine planters and other boats	143,800		
For wharf, Guantanamo	20,000		
For fire control (Signal Department)	2,457		
		$340,257	
and increased by the following items added since the report of the Taft Board:			
For increased cost of mine structures due to increase in project for Manila Bay	259,850		
For increased cost of mine material due to increase in project for Manila Bay	392,775		
For magazines for explosives (Engineer Department)	55,000		
For panel boards, increased cost of (Ordnance Department)	450		
		708,075	
Or a net increase of			367,818
which, added to the estimate of the Taft Board, gives			2,135,458
as the corrected estimate for mine defenses for the insular ports.			

Of this $2,135,458, $905,350 relates to *submarine mine structures* under the Engineer Department, and $1,230,108 to *submarine mine material* under the Ordnance Department.

Considering the estimate			$905,350
for providing submarine mine structures for insular ports, the amount			227,000
was estimated for submarine mine structures for Guantanamo, San Juan, Guam, and Kiska Island.			
Subtracting, there remains			678,350
as the cost of providing submarine mine structures for Manila and Subic Bays, Honolulu, and Pearl Harbor.			
There has been appropriated for submarine mine structures for insular ports since the report of the Taft Board	$329,000		
which amount should be increased by	150,000		
appropriated prior to the report of the Taft Board,		$479,000	
and reduced by		60,500	
for excess in cost of structures built over estimate, making a net sum of			418,500
leaving			259,850

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to be estimated for this year. This entire amount is required to complete the structures for the revised mine project for Manila Bay—appropriations having been made heretofore for mine structures for Subic Bay, Honolulu, and Pearl Harbor, as well as those called for in the original project for Manila Bay.

Considering the estimate		$1,230,108
for submarine mine material for insular ports, the amount		242,432
was estimated for Guantanamo, San Juan, Guam, and Kiska Island.		
Subtracting, there remains		987,676
as the cost of the submarine mine material for Manila and Subic Bays, Honolulu, and Pearl Harbor.		
There has been appropriated for submarine mine material for insular ports since the Taft Board reported	$557,060	
which amount should be reduced by	190	
for excess in cost of material over estimates, making a net reduction of		556,870
which has been applied to completing the submarine mine material for Subic Bay and Honolulu and such of this material for Manila Bay as was called for by the original project for that locality.		
This leaves		430,806
of which the amount		392,775
an estimate for which will be submitted to Congress this year, is required to provide the additional material for the revised project for Manila Bay,		
leaving		38,031
for providing the submarine mine material for Pearl Harbor.		

As stated above, the estimates to be submitted to Congress this year will contain items of $259,850 and $392,775 for additional mine structures and mine material, respectively, for completing the revised mine project for Manila Bay.

The estimate of the Taft Board for electric plants, both central and emplacement, for the insular ports was		$788,713
Of this amount		210,445
was estimated for electric plants for Guantanamo, San Juan, Guam, and Kiska Island.		
Subtracting, there remains		578,268
as the estimate of the Taft Board for electric plants for Manila and Subic Bays, Honolulu, and Pearl Harbor.		
This amount has been reduced by	$823,292	
appropriated since the report of the Taft Board, and also by	66,931	
savings made to date on actual cost of construction over estimates.		350,223
Subtracting, there remains		228,045
as the estimate for completing the electric plants for Manila and Subic Bays, Honolulu, and Pearl Harbor.		
An estimate for that part of this amount needed to complete the power plants, both central and emplacement, for Manila Bay will be submitted to Congress this year. This estimate is itemized as follows:		
Emplacement plants, Manila Bay	89,617	
Central plant, Caballo Island	82,346	
Total		171,963
This leaves		56,082

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to be estimated for in future to complete the emplacement plants for Subic Bay and the central plants for Honolulu and Pearl Harbor. This amount, $56,082, is composed of the following items:

Subic Bay, emplacement plants	$21,613
Honolulu and Pearl Harbor, central plants	34,469
Total	56,082

The urgent need for electric plants in connection with coast defenses is set forth on a preceding page of this report, in connection with the remarks on the need for these plants for home ports. The need for these plants is equally urgent in the case of the insular ports. Past appropriations under this item have been sufficient to provide the central plants needed for Subic Bay and Corregidor, Carabao, and El Fraile islands in Manila Bay, and the emplacement plants needed for Honolulu and Pearl Harbor, leaving to be provided for the localities mentioned central plants for Honolulu and Pearl Harbor, and for Caballo Island in Manila Bay, and emplacement plants for Manila and Subic Bays. Of this work the most urgent—the completion of the emplacement plants for Manila Bay and the central plant for Caballo Island—has been included in the estimates to be submitted to Congress this year.

The estimate of the Taft Board for searchlights for the gun defenses of insular ports was	$589,000
This amount must be increased by the amount estimated by the board for mine lights for insular ports, which was carried in the report of the board in its estimate for submarine defenses, but which has since been subtracted from that item and added to the board's estimate for gun lights.	174,000
This amount must also be increased by due to increase in cost per light over figures used by the Taft Board, this increase being $1,400 for a 60-inch light and $1,800 for a 36-inch light, which for the 34 60-inch and 13 36-inch lights recommended by the Taft Board for insular ports amounts to $71,000.	71,000
This amount must still further be increased by on account of an increase of 4 60-inch lights in the number of lights now estimated for over the number estimated for by the Taft Board.	81,600
This makes the corrected estimate for searchlights for insular ports	915,600
Of this corrected estimate is the estimated cost of searchlights for Guantanamo, San Juan, Guam, and Kiska Island.	381,600
Subtracting there remains as the corrected estimate for searchlights for Manila and Subic Bays, Honolulu, and Pearl Harbor.	534,000

This estimate is itemized as follows, the estimated cost of a 60-inch light being $20,400 and of a 36-inch light $10,800:

Manila Bay—		
Fourteen 60-inch lights	$285,600	
One 36-inch light	10,800	
		296,400
Subic Bay—		
Two 60-inch lights	40,800	
Three 36-inch lights	32,400	
		73,200
Honolulu and Pearl Harbor—		
Seven 60-inch lights	142,800	
Two 36-inch lights	21,600	
		164,400
Total		534,000

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This amount has been reduced by		$462,500
appropriated since the report of the Taft Board and allotted as follows:		
Manila Bay	$275,800	
Subic Bay	73,200	
Honolulu and Pearl Harbor	113,500	
Total	462,500	
Subtracting, there remains		71,500
as the estimate for completing Manila and Subic Bays, Honolulu, and Pearl Harbor. This estimate is itemized as follows:		
For Manila Bay	20,600	
For Honolulu and Pearl Harbor	50,900	
Total	71,500	
An estimate for that part of this amount, $71,500, needed to provide the following lights for Honolulu and Pearl Harbor:		
Two 60-inch lights	40,800	
which must be reduced by	700	
unapplied balance on hand, will be submitted to Congress this year,		40,100
leaving		31,400
for completing the searchlight projects for Manila Bay, Honolulu, and Pearl Harbor to be estimated for in future. This amount is itemized as follows:		
For Manila Bay	20,600	
For Honolulu and Pearl Harbor	10,800	
Total	31,400	

The need for the additional searchlights for Honolulu and Pearl Harbor, for which an estimate will be submitted to Congress this year, is urgent, as they are required for gun and mine defenses already authorized. At night gun defenses are useless and mine fields may be removed without great danger to the attacking force, if the defenses are not provided with searchlights. The estimate for searchlights for insular ports to be submitted to Congress this year is the minimum consistent with the proper utilization of the gun and mine defenses already authorized, and Congress should be urged to appropriate the full amount of the estimate at its next session.

The estimate of the Taft Board for fire control for insular ports was		$1,895,557
Of this amount		770,424
was estimated for fire control for Guantanamo, San Juan, Guam, and Kiska Island.		
Subtracting, there remains		1,125,133
as the Taft Board estimate for fire control for Manila and Subic bays, Honolulu, and Pearl Harbor.		
This amount has been reduced by	$825,000	
appropriated since the report of the Taft Board, and also by	250,133	
savings in actual cost of fire-control systems installed over Taft Board estimates.		1,075,133
Subtracting, there remains		50,000
as the cost of completing the fire-control installation for Caballo Island in Manila Bay, the installations for the other islands in Manila Bay and for Subic Bay, Honolulu, and Pearl Harbor, having been covered by appropriations made heretofore.		

As stated above, past appropriations for fire control for insular ports have been sufficient to complete Subic Bay, Honolulu, Pearl Harbor, and Manila Bay, except Caballo Island. As the initiation of work on the projected emplacements for Caballo Island must await

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further appropriations by Congress, no estimate for fire control for insular ports will be submitted to Congress this year.

The estimate of the Taft Board for completing the supply of reserve ammunition for insular ports was	$2,900,000
This amount should be increased by on account of error made by Taft Board in estimating cost of ammunition.	737,712
This makes the corrected estimate for completing the supply of reserve ammunition for insular ports.	3,637,712
Of this amount is estimated for Guantanamo, San Juan, Guam, and Kiska Island.	1,388,754
Subtracting, there remains as the corrected estimate for completing the reserve supply of ammunition for Manila and Subic Bays, Honolulu, and Pearl Harbor, at the date the Taft Board reported.	2,248,958
This amount has been reduced by appropriated since the report of the Taft Board.	1,200,000
Subtracting, there remains as the cost of completing the reserve supply of ammunition for Manila and Subic Bays, Honolulu, and Pearl Harbor at present.	1,048,000
An estimate for for reserve ammunition for Manila Bay, Honolulu, and Pearl Harbor will be submitted to Congress this year—the supply of reserve ammunition for Subic Bay having been completed from previous appropriations—leaving	700,000
to be estimated for in future for these localities.	348,000

Past appropriations have been sufficient to provide only a partial supply of ammunition for the armament of the insular ports already completed, while $919,839 is required to complete the supply of ammunition for the armament of the insular ports completed and under construction. On account of the distance of the insular ports from the United States ammunition can not be supplied to them after the outbreak of war, not even during the period intervening between the time when a war appears imminent and the date of its outbreak. The necessity, therefore, for completely equipping the defenses of each insular port in time of peace with a full supply of ammunition is apparent. The full amount of the estimate to be submitted to Congress this year, $700,000, is urgently needed and should be appropriated at the next session of Congress.

In connection with the above itemized statements showing the existing condition of the different elements of the defense of insular ports, I desire to emphasize the fact that in my opinion the policy to be followed by the War Department in the preparation of estimates for the fortification of insular ports and in their presentation to Congress should involve the provision of the accessories necessary for the armament more or less contemporaneously with the provision of the armament itself. The futility of the opposite policy, that of providing an armament without providing its accessories at the same time, which policy was followed for many years in fortifying home ports, is apparent from the fact that a large percentage of the armament now installed in the home ports, involving an expenditure of many millions of dollars, is to a large degree ineffective, due to the lack of the necessary accessories for the armament provided; and that at the present rate of congressional appropriation a considerable number of years will elapse before this condition will be wholly remedied. In fortifying the insular ports this error made

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in fortifying home ports should be avoided, and the installation of necessary accessories should proceed contemporaneously with the installation of the armament.

The importance of the early completion of the coast defenses of the insular ports of Manila and Subic Bays and of Honolulu and Pearl Harbor lies in the fact that such defenses are necessary not only for the protection and retention of these ports but also, and of greater moment as affecting fundamentally any scheme of national defense, for affording secure naval bases and coaling stations. Without such fortified bases the retention of our insular possessions, the protection of our commerce, and the ability of our navy to conduct offensive operations outside of narrow zones bordering upon the coasts of the United States can be assured only by stationing in every possible theater of operations a fleet superior to the combined fleets of the enemy; a condition wholly impracticable of attainment. The alternative of providing well fortified bases in our insular possessions, freeing the navy for the most effective mobilization and the widest range of action, can be carried out at a very small fraction of the cost of such a naval policy.

The insular ports that require defenses for strategic reasons were decided upon by the Taft Board and the work of fortifying several of them is now well advanced toward completion. On account of the fact that the strategic value of Manila and Subic Bays, Honolulu, and Pearl Harbor exceeds that of other localities in the insular possessions, all appropriations have been applied to these localities except a small amount allotted to Guantanamo prior to the report of the Taft Board.

The urgency of the early completion of the defenses of Manila and Subic bays, Honolulu, and Pearl Harbor, therefore, can scarcely be overestimated. Whether viewed from a military standpoint or from the standpoint of the broadest national policy, the necessity for secure defenses for these localities, the sine qua non for the successful conduct of a war which involves the Pacific Ocean as a theater of operations, must be apparent to the most casual observer. The completion of the fortification projects for these localities will involve an expenditure of only $3,828,959, and I renew the recommendation made in my report of last year that the War Department, in presenting to Congress the needs of the military service, lay special stress upon the importance and urgency of the early completion of the defenses of the insular ports now being fortified.

(c) MATERIAL OF THE ISTHMIAN CANAL PORTS.

The report of the Taft Board, dated February 1, 1906, included a project for the provision of seacoast defenses for the termini of the Isthmian Canal, and estimate of cost therefor of $4,827,682. This estimate, however, did not include the purchase or reclamation of sites for these defenses nor the construction of accommodations for artillery garrisons, and, the Taft Board having confined its recommendations solely to seacoast defenses, did not include the provision of land defenses or of accommodations for a mobile army garrison for the Canal Zone. The Secretary of War, therefore, in November, 1909, appointed a joint board of officers of the army and the navy for the purpose of preparing a complete project of defense for the Isthmian Canal, to include both seacoast and land defenses and

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accommodations for the necessary garrisons. This board has visited the Isthmus of Panama and, under date of August 12, 1910, submitted a report containing a complete project, with estimates, for the defense of the canal. The following extract from the report of the board gives estimates of cost for the complete project, and the recommendations of the board as to the manner in which the work should be done:

The following table gives the estimates of cost for the defenses recommended by the board, for the necessary accessories for use therewith, for the construction of permanent posts, and for the preparation of camp sites; but does not include the cost of construction for naval purposes:

Surveys	$62,000
Purchase and reclamation of sites	1,200,000
Emplacements, seacoast batteries	6,027,000
Guns and carriages, seacoast batteries	2,324,000
Ammunition, seacoast	1,382,288
Power plants, seacoast	138,000
Searchlights, seacoast	244,800
Fire control, seacoast	370,755
Field fortifications	282,000
Camps	240,000
Permanent posts, coast artillery	1,834,000
Permanent post, mobile army	5,442,000
Total	19,546,843

The board is unable to make a close estimate of the total cost of construction of the naval stations for the reason that the scope of the stations has not been definitely indicated to it by the Navy Department. In any event the principal point to be settled in these stations is the location of the dry docks, and that can not be settled without examinations and borings. While the above total does not, therefore include the naval establishments on the Isthmus, the board records its opinion tha naval establishments provided with such facilities as the Navy Department shal consider necessary are an essential part of the defense of the canal, and should be provided equally with the projected land defenses.

It is conservatively estimated that the canal will be completed and in use by January 1, 1915, and it is quite possible that it may be completed before that date. As it will require several years to construct and emplace the proposed armament, if it is to be done in an orderly and economical manner, the initiation of work on these defenses should not be deferred beyond the close of the present fiscal year, if they are to be completed by the date of completion of the canal. The board therefore recommends that an estimate be submitted to Congress this year for $19,546,843, for the purposes indicated in the above table, with recommendation that the expenditure of this sum be authorized and that the sum of $7,000,000 thereof be appropriated at the next session of Congress and made immediately available for expenditure toward the execution of these purposes with a view to their completion within three years; and it recommends that the further sum of $2,000,000 be appropriated at the next Congress and made available immediately and until used, for expenditure toward the creation of the necessary naval establishments, including complete surveys; in all $9,000,000 to be made immediately available.

The board is of the opinion that, as a matter of economy and efficiency, the authority charged with the construction of the canal should also be charged with the military and naval works of construction for defense of the canal, the work to be done in accordance with plans to be approved by the Government.

BARRACKS AND QUARTERS.

HOME PORTS.

On November 21, 1906, the Secretary of War approved the plans submitted by the Chief of Coast Artillery for the distribution of coast artillery troops, whereby 36 posts were selected to be garrisoned, each by at least one company, the remaining posts to be administered as "subposts" provided with care-taker detachments only. The terms "concentration scheme" and "main posts" have come to be

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commonly used in referring to these plans and to the 36 garrisoned posts. The use of these terms is likely to lead to a misconception unless it is understood that at no post is concentration contemplated beyond the requirements of one manning detail for the armament of that post, and taking into consideration the entire 36 posts the present Coast Artillery Corps of 170 companies would provide but 60 per cent of one manning detail for the existing armament of those posts.

The important advantages of the concentration scheme, when compared with the former scheme for stationing at each coast artillery post a proportion of the authorized strength of the coast artillery personnel based on the armament of each post, are economy in administration and efficiency in training; the annual saving in cost of administration under the concentration scheme as against the former scheme being about $710,000 and about 60 per cent of one manning detail at each post being possible as against about 30 per cent under the former scheme. Upon the approval of the concentration scheme by the Secretary of War the features of the scheme and the advantages thereof were represented to Congress, and at the same time estimates amounting to $1,469,300 were submitted for inaugurating the work necessary to carry the concentration scheme into effect. For the strength of the coast artillery at that time it was calculated that a total expense of $2,769,300 was involved.

While the consideration of this question of barracks and quarters required for the concentration scheme was in progress in Congress the Coast Artillery Corps was increased by 44 companies by the act of January 26, 1907. On the passage of this act it became necessary to provide at once additional barracks and quarters for the increase in coast artillery personnel. Estimates prepared at the time by the Quartermaster-General and submitted to Congress showed that an expenditure of $6,300,000 was necessary to provide barracks and quarters for the entire increase in the artillery personnel authorized by the act. Of this $6,300,000 it was estimated that $4,600,000 pertained to the coast artillery and the remainder to the field artillery. In addition to barracks and quarters, there were needed for coast artillery administration purposes, on account of the increase, guardhouses, administration buildings, storehouses, shops, and additions to buildings, estimated to cost $1,000,000. The only funds immediately available for this work were those carried under the regular appropriation for barracks and quarters, seacoast defenses, amounting that year to $1,250,000.

A special case, and one of importance, was the need for new buildings at Fort Monroe, estimated to cost $528,000, for the Coast Artillery School, which was about to be organized on a new basis to include the School of Submarine Defense theretofore at Fort Totten, N. Y.

The following were the estimates of the cost of barracks and quarters and other buildings needed by the coast artillery at the date of increase, January 25, 1907, in order that its entire personnel should be effectively housed, economically administered, and efficiently trained:

Concentration of personnel existing prior to passage of increase bill	$2,769,300
Barracks and quarters due to increase	4,600,000
Other buildings due to increase	1,000,000
Special buildings at Fort Monroe	528,000
Total	8,897,300

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Since the passage of the act increasing the coast artillery, the following appropriations have been made for barracks and quarters, seacoast defenses:

Act of March 4, 1907	$1,250,000
Act of May 27, 1908	2,139,060
Act of March 4, 1909	1,500,000
Act of June 25, 1910	400,000
Total	5,289,060

which is the amount by which above estimates of 1907, viz, $8,897,300, have been reduced. This leaves a balance of $3,608,240.

The following table shows the barracks and quarters now provided at main posts, those required to complete the scheme for 170 companies, and the estimated cost of completion, the latter amount being $3,599,000, which differs from the balance just deduced by only $9,240. The "other buildings due to increase," for which $1,000,000 is above estimated, have been or are being provided at all posts but Fort Taylor and Fort Winfield Scott.

District.	Now provided at main posts.						Required to complete scheme of concentration for 170 companies of coast artillery.						Cost of completion.
	Company barracks.	Band barracks.	Field officers' quarters.	Captains' and lieutenants' quarters.	Bachelor quarters.	Noncommissioned staff officers' quarters.	Company barracks.	Band barracks.	Field officers' quarters.	Captains' and lieutenants' quarters.	Bachelor quarters.	Noncommissioned staff officers' quarters.	
Portland	12	1	6	24	10	36	....	....	1	3	....	1	$43,000
Portsmouth	....	....	....	....	....	....	3	....	1	10	....	9	279,000
Boston	10	....	4	28	5	33	2	1	2	4	....	....	174,000
New Bedford	1	....	1	3	....	5	1	....	....	5	....	....	92,000
Narragansett Bay	8	1	4	22	....	14	1	....	1	6	4	8	165,000
New London	12	1	6	23	9	32	1	....	1	2	....	....	77,000
Eastern New York	7	1	4	20	8	18	....	....	....	....	....	2	8,000
Southern New York	11	....	1	24	12	28	6	1	5	16	....	14	562,000
Delaware	5	1	1	12	5	13	....	....	1	2	....	....	30,000
Baltimore	4	....	2	9	4	11	....	....	....	2	....	1	22,000
Potomac	5	....	2	8	8	12	....	....	1	1	....	3	33,000
Chesapeake Bay	10	1	6	60	52	38	....	....	....	7	....	....	63,000
Cape Fear	3	....	1	11	....	7	....	....	....	....	....	1	4,000
Charleston	4	1	1	10	4	11	1	....	1	4	....	....	95,000
Savannah	4	1	....	11	5	8	....	....	1	2	....	1	34,000
Key West	....	....	....	....	....	....	6	1	4	14	5	10	541,000
Tampa	2	....	1	6	....	12	....	....	....	3	....	1	31,000
Pensacola	5	....	2	14	8	16	....	....	....	....	....	1	4,000
Mobile	4	1	2	11	....	11	....	....	....	....	....	....	....
New Orleans	....	....	....	....	....	....	....	....	....	....	....	....	....
Galveston	2	....	....	8	....	8	1	....	1	3	....	1	90,000
San Diego	2	....	1	8	....	9	....	....	....	....	....	....	....
San Francisco	14	1	3	[a] 22	8	23	4	....	6	18	4	10	532,000
Columbia	3	....	1	8	....	14	2	....	3	2	4	....	168,000
Puget Sound	10	1	3	28	5	32	4	....	4	5	4	1	305,000
Total	138	11	52	370	143	391	32	3	33	109	21	64	3,352,000
Other buildings:													
Fort Taylor													117,500
Fort Winfield Scott													129,500
Grand total													3,599,000

[a] Also 3 old sets.

As soon as practicable after the increase in the coast artillery, the additional 44 companies were organized and they have since been recruited up to their maximum authorized strength. They have been doubled up in existing barracks or quartered in tents until such

time as the construction of barracks could be completed; all of the barracks are not yet finished and occupied, but the worst of the overcrowding is relieved. This condition has also been improved in another way. The completion of part of the defenses of the Philippine Islands and Hawaii during this period made it advisable to send at once coast artillery troops to mount and man the guns for these forts. Eight companies have so far been sent away from home posts for this purpose and 14 more will soon be required for the armament nearing completion. Barracks and quarters for these companies are now being provided in the insular possessions.

There will then remain in the United States 148 companies, and the proposed distribution of these, by artillery districts, is as given in the table below. The table also gives the approved distribution of 170 companies for the home posts, and the barracks and quarters which are provided for at main posts in the several artillery districts.

Artillery district.	Companies under approved distribution.	Companies proposed on 148 basis.	Provided for at main posts.			Companies not provided for at main posts on 148 basis.
			Barracks.	Officers' quarters.	Noncommissioned staff officers' quarters.	
Portland	12	12	12	40	36	.....
Portsmouth	3	.....	.....	.....	.....	.....
Boston	12	11	10	37	33	.....
New Bedford	2	1	1	4	5	.....
Narragansett Bay	9	8	8	26	14	.....
New London	13	12	12	38	32	.....
Eastern New York	7	7	7	32	18	.....
Southern New York	17	13	11	37	28	2
Delaware	5	5	5	18	13	.....
Baltimore	4	4	4	15	11	.....
Potomac	5	5	5	18	12	.....
Chesapeake Bay	10	10	10	118	38	.....
Cape Fear	3	3	3	12	7	.....
Charleston	5	4	4	15	11	.....
Savannah	4	4	4	16	8	.....
Key West	6	3	.....	.....	.....	3
Tampa	2	2	2	7	12	.....
Pensacola	5	5	5	24	16	.....
Mobile	4	4	4	13	11	.....
Galveston	3	2	2	8	8	.....
San Diego	2	2	2	9	9	.....
San Francisco	18	18	14	33	23	4
Columbia	5	3	3	9	14	.....
Puget Sound	14	10	10	36	32	.....
Total	170	148	138	565	391	9

The last column of the above table shows what companies are not provided with barracks at main posts. The 2 in the Southern Artillery District of New York will occupy old casements at Fort Wadsworth. In the artillery district of Key West, 1 is temporarily stationed at Key West Barracks instead of at Fort Taylor, and as a result of the hurricane of October, 1909, two had to be sent elsewhere for the present. Of the 4 in the artillery district of San Francisco, 2 will be at Fort Barry and 2 at Fort Miley.

It is in the district of Key West that conditions prevail demanding the most serious attention. At Key West Barracks the buildings are old, inadequate, and separated from the guns by the city of Key West. These objections alone led me to recommend long ago that instead of remodeling and adding to the present buildings the site

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of the post be transferred to Fort Taylor. Under the appropriation made two years ago enough land has been secured adjoining the Fort Taylor Reservation to cover the sites of the most important buildings of the new post as laid out by the board which considered the matter; but additional land is necessary for the complete development of the post, and it is urged that estimates for the same be submitted to Congress, as well as for the amount necessary to construct barracks and quarters for at least two companies.

The appropriation for "Barracks and Quarters, Seacoast Defenses," carried by the act approved June 25, 1910, is $400,000. This amount has been devoted to completing the necessary construction work to accommodate as far as possible the garrison at the Presidio of San Francisco, so that it may be provided for at the new post, Fort Winfield Scott.

This amount is being expended for the following:

5 coast artillery barracks, at $37,000	$185,000
1 band barrack, at $18,000	18,000
3 field officers' quarters, at $12,000	36,000
4 captains' quarters (2 double sets)	32,000
4 lieutenants' quarters (2 double sets)	32,000
1 4-set apartment house	28,000
6 noncommissioned staff officers' quarters	18,000
1 administration building	20,000
1 guardhouse	20,000
1 commissary storehouse	11,000
Total	400,000

The allotments indicated in the above table are practically in accord with the estimates.

INSULAR PORTS.

The estimated cost of providing barracks and quarters for the 22 companies of coast artillery needed to man the armament in the insular ports completed or nearly completed at present is		$1,830,000
which amount is composed of the following items:		
A 14-company post, Fort Mills, Corregidor Island, P. I.	$980,000	
A 4-company post, Fort Wint, Grande Island, P. I.	425,000	
A 4-company post, Honolulu, H. T.	425,000	
Total	1,830,000	
Of this amount, $1,830,000, there has been appropriated		975,000
of which $550,000 has been allotted to construction work at Fort Mills, P. I., and $425,000 to construction work at Honolulu, H. T., leaving balances to be appropriated to complete the proposed coast-artillery posts described above of—		
For a 14-company post, Fort Mills, Corregidor Island, P. I.	$430,000	
For a 4-company post, Fort Wint, Grande Island, P. I.	425,000	
or a total of		855,000
to be appropriated in future to complete accommodations for the 22 companies of coast artillery required at present for the service of armament in the insular ports.		

The need for barracks and quarters for coast artillery troops at Manila and Subic Bays and at Honolulu is urgent. In fact, far more urgent than the need for additional barracks and quarters for coast-artillery troops in the United States. Such rapid progress has been made in the installation of the defenses for the insular ports that the armament completed or nearly completed in Manila Bay will require

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14 companies for one manning detail and that in Honolulu 4 companies, while that already completed in Subic Bay requires 4 companies, a total of 22 companies for the three localities. The total armament now authorized for the insular ports will require 29 companies for one manning detail.

On account of the distance of the insular ports from the United States, which renders it improbable that sufficient time will be available when a war appears imminent and before its outbreak to enable coast artillery troops sent from the United States to reach those ports, a full manning detail for the defenses must be maintained in those ports at all times; otherwise in case of sudden war the expenditures made on these defenses will have been wasted. For this reason the construction of barracks and quarters at insular ports should proceed concurrently with the construction of fortifications. The appropriations made to date will be sufficient to provide permanent accommodations for the 4 companies required to man the armament in the artillery district of Honolulu completed or nearly completed, and probably for 8 of the 14 companies required at present for the artillery district of Manila Bay. The early completion of the proposed 14-company post on Corregidor Island in Manila Bay is regarded as an urgent necessity and it is earnestly recommended that the necessary funds for this work, $430,000, be appropriated at the next session of Congress.

TARGET PRACTICE.

The improvement in target practice in 1909 over 1908 with each type of heavy gun and mortar battery was marked. The same targets, except for 5-inch and 4.7-inch guns, as indicated below, were used for both years. These targets were: For heavy guns, a 30 by 60 foot hypothetical target; for rapid-fire guns, a 10 by 24 foot material target; for mortars, a hypothetical target having a diameter of 100 yards. (NOTE.—Five-inch and 4.7-inch guns used 10 by 24 foot target in 1908 and 30 by 60 foot target in 1909.) The ranges were—

	1908.	1909.
Guns:	*Yards.*	*Yards.*
Primary armament	5,000–9,000	4,000–10,000
Intermediate and secondary armament	1,000–6,000	1,500–5,000
Mortars	3,000–9,000	3,000–9,000

The increase in mean percentage of hits in 1909 over 1908 with each caliber of gun and mortar is as follows:

12-inch mortars	6.4
12-inch guns	22.2
10-inch guns	13.5
8-inch guns	27.6
6-inch guns	24.2
5-inch guns	44.6
4.7-inch guns	43.0
4-inch guns	18.2
3-inch guns	10.5

As will be seen from the above, the mean percentages of hits for 1909 with all guns and mortars show consistent improvement over the

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previous year. The following individual records made with guns and mortars in 1909 are especially noteworthy:

Mortars.—At Fort Howard, Md., in August, 1909, the Twenty-first and One hundred and third companies, Coast Artillery Corps, manning a battery of 12-inch mortars, made 8 hits out of 14 shots in seven minutes and thirty seconds. In this practice 1.07 hits per minute were made, which is the highest rate of hitting that has yet been attained by a mortar battery. In the best mortar practice for 1908, 0.881 hits per minute were made. This improvement not only in best records, but the consistent improvement with our mortars, is very gratifying. These records are made by firing one mortar at a time. As stated in my last report, it is contemplated to fire mortars in service in groups of 4 or 8, so that the hits per minute which are now being made in practice should be greatly multiplied. The accuracy of mortars at long range, and their moral effect on an enemy, will undoubtedly deter the most zealous enemy from approaching our fortifications except in case of direst necessity.

Heavy guns.—The most remarkable score which has yet been made by heavy guns was made by the Eighteenth Company, Coast Artillery Corps, at Fort Hancock, N. J., in September, 1909. This company, manning 10-inch rifles on disappearing carriages, fired four shots at a moving material target 30 feet high by 60 feet long at a range of almost 7,000 yards, or 4 miles from the battery. All four shots struck the material target, actually passing through a rectangle 24 feet high by 53 feet long. The four shots were fired in a total elapsed time of less than one minute, the battery scoring slightly over two hits per gun per minute.

Another exceptionally good record with 10-inch rifles on disappearing carriages was made by the One hundred and fifteenth Company, Coast Artillery Corps, at Fort Rosecrans, Cal., in October, 1909. Four shots were fired at a moving target 30 feet high by 60 feet long at a range of about 9,000 yards, or 5 miles from the battery. Three of the four shots scored hits, all four shots passing through a rectangle 9 feet high by 45 feet wide. One of the shots passed 4 yards to the left of the target. The four shots were fired in a total elapsed time of one minute and twenty seconds, the battery scoring 1.13 hits per gun per minute. Each shot splashed water over the target.

In accordance with the plan referred to in my last annual report, night firing was held in 1909 by six companies of the Coast Artillery Corps assigned to rapid-fire guns. The firing was held in six harbors where the shipping at night was so little as to permit the firing to be held with safety. The results of this first attempt at night firing was very satisfactory. The scores, except in one case, were low, but the feasibility of such firing was demonstrated. One company made 75 per cent of hits, and although the rate of firing was slow the record is considered exceptionally good for night work. The Ordnance Department is now taking steps to secure satisfactory shell tracers, and as soon as these are provided night practice will be continued in all harbors where it can be held safely. It is hoped to extend this firing to include, eventually, all heavy caliber guns.

As stated in my last annual report, rules and regulations governing target practice are now drawn with a view to making the study of

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gunnery and target practice progressive. In 1909 all companies assigned to 8-inch, 10-inch, and 12-inch guns, with four exceptions, qualified at short range for advancement to long range, so that practically all heavy gun batteries are having practice this year at long range. The fact that practically *all* heavy gun batteries have qualified at short range shows that our personnel assigned to these guns can now hit at short ranges. It is the plan to advance to long ranges and fire there until our companies can, on the average, do satisfactory work at these ranges. In accordance with this policy of making the study of gunnery and target practice progressive, therefore, it is hoped that in the near future fire and battle command practice will he held at short and long ranges under war conditions as nearly as it is possible to simulate them.

The improvement in target practice with the guns and mortars in the last few years has been consistent, showing a steady advance toward a maximum of efficiency in target practice. As the target practice improves, the requirements as to conditions affecting practice are made more difficult. For example, this year (1910), for the first time, practically all practice with heavy guns (8-inch, 10-inch, and 12-inch) is beyond 7,000 yards, or 4 miles, and only actual hits made on a 30 by 60 foot screen are counted. Heretofore, ranges have been shorter and hits have been counted on a hypothetical target. It is to be expected, then, that improvement in practice as evidenced by mean percentage of hits may not be as marked in the future as it has been in the past. Knowledge of gunnery and ability to hit is, however, advancing steadily, and the interest and enthusiasm of officers and men in target practice encourages a healthy spirit in the Coast Artillery Corps.

BOAT SERVICE FOR COAST ARTILLERY.

The service performed by the vessels assigned to the coast artillery can be divided into three distinct classes: (*a*) Submarine mine service, (*b*) artillery service, (*c*) passenger and freight service.

For class (*a*) the principal part of the work is performed by the mine planter, which is a seagoing vessel equipped with the necessary gear for planting and raising mines. This type of vessel is a product of recent years. As late as 1903 there were no facilities for giving instruction in mine planting at any post except Fort Totten, N. Y. Improvised mine planters were used there, and a limited number of officers and men were instructed in mine work each year and sent out from Fort Totten to various coast artillery posts to disseminate knowledge of submarine mining.

In 1904 four mine planters, constructed by the Quartermaster's Department in accordance with the designs of the torpedo board, were turned over to the artillery. One of these vessels was stationed at Fort Totten, N. Y., for instruction work at the School of Submarine Defense and the three others were sent to the various harbors on the Atlantic and Gulf coasts for periods of practical instruction in mine planting. The rapid increase in the efficiency of the mine defense, due to the use of the planters, led the Chief of Coast Artillery to present to the War Department the needs of the Pacific coast and the insular possessions in this respect, with the result that two planters

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were obtained for the Pacific coast and two for the insular possessions. The present distribution of the mine planters is shown in the following table:

Name.	Class.	Service performed.
Gen. Samuel M. Mills	Mine planter	Submarine mine instruction at Coast Artillery School, Fort Monroe, Va.
Gen. John M. Schofield	do	Submarine mine instruction at coast artillery posts on Atlantic and Gulf coasts.
Gen. Edward O. C. Ord	do	
Gen. Royal T. Frank	do	
Col. George Armistead	do	Submarine mine instruction at coast artillery posts in San Francisco and San Diego harbors.
Maj. Samuel Ringgold	do	Submarine mine instruction at coast artillery posts in Puget Sound and Columbia River.
Gen. Henry J. Hunt	do	Submarine mine instruction in Manila Bay.
Gen. Henry Knox	do	Submarine mine instruction in Subic Bay.

The four planters on the Atlantic and Gulf coasts, the two on the Pacific, and the two in the insular possessions are sufficient for instruction purposes in time of peace. In the event of war they will be assigned to particular harbors for planting the mines required by the approved projects for those places; at the same time, as explained in my report for 1908, there will be available for service in mine planting 31 vessels of the Light-House Establishment and 9 vessels now used for passenger and freight service by the Quartermaster's Department. In this manner all of the large boats necessary for the proper planting of mines in all the fortified harbors of the United States in time of war will be available.

The distribution box launch has proved a most valuable accessory to the mine planter. Thirty-two of these launches have been completed and assigned—24 to artillery districts in the United States, 2 to the Hawaiian Islands, and 6 to the Philippine Islands. These launches have shown themselves to be especially suitable for the work for which they were intended. While their number is sufficient for instruction purposes in time of peace, it will be necessary in the event of war to supplement them in the more important harbors by hiring such boats as can be found and rendered suitable for this work.

The artillery service referred to in class (*b*) above consists principally of the following: (1) Towing targets for service and subcaliber artillery practice; (2) vessel-tracking drill, night drill with the use of searchlights; (3) transfer of artillery material and personnel between posts in artillery districts for repair work, inspections, and drills; (4) inspections and visits of district and post commanders and staff officers to posts and subposts; (5) visits of ceremony by artillery district commanders to our own and foreign war vessels.

The principal types of vessels used for the above service are steamers about 100 feet in length, designed especially for towing targets for heavy gun practice, and steam and gasoline launches about 60 feet in length. Ten of the former type have been constructed from an appropriation in the act for the support of the army for 1907–8. They are fitted with the necessary gear for planting mines and are used at certain times as auxiliary mine planters. These vessels have proven highly satisfactory for all the duties which are assigned to them.

A table is given below showing all of the boats under the control of the artillery district commanders. It will be seen that some of

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these vessels are assigned strictly to the classes of duty given above in (*a*), (*b*), and (*c*), and some of them to duties in more than one class. The object of this is to perform all of the necessary boat service in a manner as economical as possible to the Government.

List of boats under control of artillery district commanders.

District and post.	Name of boat.	Class.	Rating in class.	Length.	Service performed.
				Feet.	
Portland:					
Fort Williams..	Henry Wilson.....	Passenger and freight steamer.	Second..	110	Quartermaster.
Do.....	Gen. Randol.....	Artillery district steamer.	First....	98	Artillery and submarine mine.
Do.....	No. 24.....	Distribution box launch.	...do....	32	Submarine mine.
Fort McKinley.	Lieut. Drew.....	Steam launch.....	...do....	60	Artillery.
Fort Preble.....	Colonel Ramsay...	.....do.....	Third...	30	Do.
Portsmouth:					
Fort Constitution.	Lieut. Grubbs....	.....do.....	First....	60	Do.
Do.....	No. 27.....	Distribution box launch.	...do....	32	Submarine mine.
Boston:					
Fort Banks.....	Lieut. Bumpus...	Steam launch.....	...do....	60	Quartermaster and artillery.
Do.....	Gen. Anderson....	Artillery district steamer.	...do....	98	Artillery and submarine mine.
Do.....	No. 25.....	Distribution box launch.	...do....	32	Submarine mine.
Fort Andrews..	Colonel Mitchell...	Steam launch.....	Second..	45	Artillery.
Fort Warren...	Captain DeHart...	.....do.....	Third...	40	Do.
Fort Strong....	Lieut. Boutelle....	.....do.....	First....	50	Do.
New Bedford:					
Fort Rodman..	Lieut. Hartshorne.	.....do.....	...do....	60	Do.
Do.....	No. 31.....	Distribution box launch.	...do....	32	Submarine mine.
Narragansett Bay:					
Fort Adams....	Captain Drum....	Tug.....	Third...	83	Quartermaster and artillery.
Do.....	General Arnold...	Artillery district steamer.	First....	98	Artillery and submarine mine.
Do.....	Lieut. Downes....	Gasoline launch.....	...do....	60	Artillery.
Do.....	No. 30.....	Distribution box launch.	...do....	32	Submarine mine.
New London:					
Fort H. G. Wright.	General Nathanael Greene.	Passenger and freight steamer.	...do....	130	Quartermaster.
Do.....	Lieut. Schenck....	Steam launch.....	...do....	65	Quartermaster and artillery.
Do.....	General Ayres.....	Artillery district steamer.	...do....	98	Artillery and submarine mine.
Do.....	Lieut. Ord.....	Steam launch.....	...do....	60	Artillery.
Do.....	No. 26.....	Distribution box launch.	...do....	32	Submarine mine.
Eastern New York:					
Fort Totten....	Captain Rowell...	Artillery district steamer.	...do....	86	Artillery and submarine mine.
Do.....	Lieut. Lewis.....	Steam launch.....	...do....	59	Quartermaster and artillery.
Do.....	No. 29.....	Distribution box launch.	...do....	32	Submarine mine.
Fort Schuyler..	Lieut. Hazlett....	Steam launch.....	Third...	33	Artillery.
Southern New York:					
Fort Hancock..	General Brown....	Artillery district steamer.	First....	98	Artillery and submarine mine.
Fort Hamilton.	Captain Connell..	Steam launch.....	...do.....	60	Artillery.
Fort Hancock..	No. 15.....	Distribution box launch.	...do.....	32	Submarine mine.
Delaware:					
Fort Du Pont..	General Howe.....	Passenger and freight steamer.	Third...	75	Quartermaster and artillery.
Do.....	No. 32.....	Distribution box launch.	First....	32	Submarine mine.
Do.....	Lieutenant Crosby	Steam launch.....	Third...	40	Artillery.
Baltimore:					
Fort Howard...	Sprigg Carroll.....	Passenger and freight steamer.	Second..	110	Quartermaster and artillery.
Do.....	Captain A. M. Wetherill.	Artillery district steamer.	First....	86	Artillery and submarine mine.
Do.....	Lieut. Gregg.....	Steam launch.....	...do.....	60	Artillery.
Do.....	No. 33.....	Distribution box launch.	...do.....	32	Submarine mine.

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List of boats under control of artillery district commanders—Continued.

District and post.	Name of boat.	Class.	Rating in class.	Length.	Service performed.
Potomac:				*Feet.*	
Fort Washington.	General Robert Swartwout.	Passenger and freight steamer.	First	110	Quartermaster and artillery.
Do	Captain Wilhelm.	Gasoline launch	do	60	Artillery.
Do	No. 28	Distribution box launch.	do	32	Submarine mine.
Chesapeake Bay:					
Fort Monroe	Reno	Tug	Second	96	Artillery.
Do	Lt. Sater	Gasoline launch	do	40	Do.
Do	No. 16	Distribution box launch.	First	32	Submarine mine.
Do	No. 1	Distribution box launch (electric).	do	32	Do.
Cape Fear:					
Fort Caswell	General Getty	Artillery district steamer.	do	98	Artillery and submarine mine.
Do	No. 14	Distribution box launch.	do	32	Submarine mine.
Charleston:					
Fort Moultrie	General Weeks	Passenger and freight steamer.	Second	120	Quartermaster.
Do	Gen. Brannan	Artillery district steamer.	First	98	Artillery and submarine mine.
Do	Lieut. Lee	Steam launch	do	60	Artillery.
Do	No. 12	Distribution box launch.	do	32	Submarine mine.
Savannah:					
Fort Screven	General Jackson	Artillery district steamer.	do	98	Artillery and submarine mine.
Do	No. 4	Distribution box launch.	do	32	Submarine mine.
Fort Fremont	Lieut. Smith	Steam launch	do	65	Quartermaster and artillery.
Key West:					
Fort Taylor	Lieutenant Burnham.	do	Third	30	Artillery.
Do	No. 3	Distribution box launch.	First	32	Submarine mine.
Tampa:					
Fort Dade	General Timothy Pickering.	Passenger and freight launch.	Second	110	Quartermaster and artillery.
Do	Lieut. Shipp	Steam launch	First	60	Artillery.
Do	Lieut. Koehler	do	do	65	Quartermaster and artillery.
Do	Pleasanton	Gasoline launch	Third	30	Artillery.
Do	No. 7	Distribution box launch.	First	32	Submarine mine.
Pensacola:					
Fort Barrancas	Poe	Steam lighter	Second	92	Quartermaster and artillery.
Do	Capt. Morrison	Artillery district steamer.	First	86	Artillery and submarine mine.
Do	Lieut. Neary	Gasoline launch	do	60	Artillery.
Do	Captain Page	Steam launch	Second	45	Do.
Do	No. 11	Distribution box launch.	First	32	Submarine mine.
Mobile:					
Fort Morgan	General Holabird	Passenger and freight steamer.	Second	110	Quartermaster and artillery.
Do	Major Forse	Artillery district steamer.	First	85	Artillery and submarine mine.
Do	No. 8	Distribution box launch.	do	32	Submarine mine.
New Orleans:					
Fort St. Philip	Mansfield	Steam launch	Second	45	Quartermaster and artillery.
Do	No. 2	Distribution box launch.	First	32	Submarine mine.
Galveston					
San Diego:					
Fort Rosecrans	Lieut. Harris	Artillery district steamer.	First	105	Quartermaster and artillery.
Do	General DeRussy.	Steam launch	do	60	Do.
Do	No. 10	Distribution box launch.	do	32	Submarine mine.
San Francisco:					
Presidio	Capt. Barrett	Artillery district steamer.	do	98	Artillery and submarine mine.
Do	No. 23	Distribution box launch.	do	32	Submarine mine.
Do	Nos. 5 and 6	do	do	32	Awaiting transportation to Honolulu.

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List of boats under control of artillery district commanders—Continued.

District and post.	Name of boat.	Class.	Rating in class.	Length.	Service performed.
Columbia:				*Feet.*	
Fort Stevens and Fort Columbia.	Major Guy Howard.	Passenger and freight steamer.	Third...	80	Quartermaster and artillery.
	Captain Fornance.	Artillery district steamer.	First....	98	Artillery and submarine mine.
	No. 9.....	Distribution box launch.	...do.....	32	Submarine mine.
Puget Sound:					
Fort Worden...	Maj. Evan Thomas.	Passenger and freight steamer.	Second..	105	Quartermaster and artillery.
Fort Casey.... Fort Flagler....	Captain Springer..	Steam launch.....	First....	65	Artillery.
Fort Ward.....	Lieut. Gurney....	.....do.....	...do.....	65	Quartermaster and artillery.
Do.....	No. 13.....	Distribution box launch.	...do.....	32	Submarine mine.
Manila Bay:					
Fort Mills.....	Pampanga.....	(Loaned by navy)....	...do.....	.....	Artillery.
Do.....	Nos. 17, 18, 19, and 20.	Distribution box launches.	...do.....	32	Submarine mine.
Subic Bay:					
Fort Wint.....	Nos. 21 and 22.....	.....do.....	...do.....	32	Do.

In addition to the above there are certain vessels which are not under the control of the artillery district commanders, but which are used by the Quartermaster's Department for general passenger and freight service in important harbors. They are as follows:

List of boats under control of depot quartermasters used for supply of coast-artillery posts.

Harbor.	Coast-artillery posts supplied.	Name of boat.	Class.	Rating in class.	Length.
					Feet.
Boston.....	Forts Strong, Andrews, Warren, and Revere.	General Thomas S. Jessup.	Passenger and freight steamer.	First....	130
		Gen. Bachelder.....	.....do.....	Second..	110
Narragansett...	.....	The quartermaster and artillery service for Fort Greble is furnished by commercial boats under contract.			
New York.....	Forts Hancock, Hamilton, Wadsworth, Totten, and Schuyler.	General Joseph E. Johnston.	.....do	First....	130
		General Meigs.....	.....do.....	...do.....	132
		Williams.....	Steam lighter.....	Second..	145
		Canby.....	.....do.....	...do.....	97
		Colonel Wykoff.....	Tug.....	Third...	60
San Francisco..	Forts Winfield Scott, Barry, and Baker.	General Mifflin.....	Passenger and freight steamer.	First....	130
		General Alexander.....	.....do.....	Third...	80
		General McDowell.....	.....do.....	First....	125
Puget Sound...	Forts Worden, Casey, and Flagler.	Cartwright.....	.....do.....	Second..	104
Manila Bay.....	Fort Mills.....	The passenger and freight service supplied by the depot quartermaster.			
Subic Bay.....	Fort Wint.....				

It will be seen from the above that the coast artillery service is very well supplied with the boats on which it so peculiarly depends for its transportation and training. These boats, which are built and maintained by the Quartermaster's Department, have per-

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formed excellent service and have added in no small measure to the efficiency of the coast artillery.

The principal additions to the above boats that are now needed are a good passenger and freight steamer for each of the following districts: Puget Sound, New Orleans, Manila and Subic Bays. It is recommended that these vessels be supplied as soon as funds for their purchase become available.

COAST ARTILLERY SCHOOL.

The work of the school during the year has been conducted in accordance with the orders, regulations, and special instructions governing it, and the progress made has been satisfactory.

Officers' division.—The academic work for the year as now established begins September 1 and ends June 30. The graduating officers of the advanced class are, from that time, available for special work in connection with joint exercises, maneuvers, etc., during the summer months, giving the service and themselves the benefit of practical application of the instruction received at the school. Graduates of the regular course remain a greater part of July for practical work and instruction at the batteries at Fort Monroe.

This is the second year that an advanced course has been pursued at the school. The success and benefit of this course are attested to by the directors, instructors, and student officers alike. The scope of their work has been enlarged particularly in the direction of map problems, field exercises and staff rides, and still further increase of work of this character is contemplated for the next advanced class.

The class of 1910 consisted of 26 officers in the regular course and 10 in the advanced course. One officer in the advanced course was unable to complete the course, due to inavoidable absence for nearly two months. The remaining officers in this course and the 26 officers in the regular course completed their work satisfactorily and received certificates of graduation. For the school year beginning September 1, 1910, 30 captains and lieutenants have been detailed for the regular class and 10 captains and lieutenants have been detailed for the advanced class.

Enlisted men's division.—This department has for its object the theoretical and practical instruction of the enlisted personnel who are to actually run the power plants, boilers, and engines, install and maintain electrical machines, instruments, searchlights, etc., and prepare the drawings and charts for coast artillery work at the various posts.

I am pleased to say that the courses in this department are meeting the needs of the service in a very satisfactory manner. Those enlisted men completing successfully any course are eligible for appointment to the proper noncommissioned staff grades of the Coast Artillery Corps and in the Coast Artillery School Detachment, and up to the present time nearly all who have qualified have received such appointments.

Three course are pursued:

1. Electrical course, to prepare men for appointment as electrician sergeants, second class.
2. Mechanical course, to prepare men for appointment as firemen.

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3. Artillery course, to prepare men for appointment as master gunners.

The work covered in each of these courses is in part theoretical, but mainly practical, so that a man completing successfully a course can immediately take up at a post the practical work for which he has qualified.

The total number of students reported for instruction on September 1, 1909, was 46. Of this number, 5 were relieved by orders from the War Department and returned to post duty before the end of the school term; 4 were relieved by expiration of enlistment; and 6 failed to receive certificates of proficiency. Forty-seven enlisted men have been detailed to take the enlisted specialists' course this year—22 in the electrical course, 12 in the mechanical course, and 13 in the artillery course. They are to commence school work September 1.

School library.—Since my last report the new library building has been provided with most of its furniture and fittings and it is hoped to advance this work considerably during the ensuing year. The cataloguing of the library has been started by an expert cataloguer and is well under way. The labor attending this work is even more than was anticipated and it will probably require a year or two more to complete it.

School buildings.—The new school buildings continue to show the wisdom displayed in their arrangement, capacity, and construction, and the work of this year has been more satisfactory and better in every way because of the excellent facilities these buildings afford.

School detachment barracks.—Plans are being drawn in the office of the Quartermaster-General for a suitable barrack building for the detachment corresponding in architecture with the school buildings near which it is to be placed.

COAST ARTILLERY BOARD.

During the past year the Coast Artillery Board has continued experiments and tests looking to the improvement of artillery material and methods. Among important subjects considered are the following:

1. *Speaking tubes.*—A nonelectrical line of communication connecting the emplacements with the plotting room and with the battery commander's station is recognized as being desirable. Experiments have been conducted with speaking tubes of varying diameters, of various materials, and with a variety of terminals, at one of the 12-inch batteries at Fort Monroe. The result has been the adoption of a 3-inch galvanized sheet-iron tube for this purpose. All forms of headpieces and mouthpieces tested were found unsatisfactory, the best results being obtained by using the end of the tube both for receiving and transmitting. It has been recommended that at gun and mortar batteries where the distances are adapted to this means of communication, speaking tubes be installed connecting the plotting room with the emplacements. The battery commander's station when located over the plotting room, as in the latest type of battery, will have a branch tube connecting with the emplacements through the plotting room tube.

2. *Competitive test of azimuth instruments.*—The azimuth instrument used up to the present time, while fairly satisfactory for day

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work was not efficient for night work, on account of the small size of the telescope. A competitive test of instruments having 3-inch objectives was inaugurated and instruments were submitted by the Warner & Swasey Company, Cleveland, Ohio; Bausch & Lomb Optical Company, Rochester, N. Y.; and the Ordnance Department, U. S. Army. In conducting the tests especial attention was given to the adaptability of the instruments to meet service requirements, the facility with which they could be used by the personnel, and the comparative cost, as well as the usual exhaustive test as to accuracy. As a result of the test, the instrument made by the Warner & Swasey Company was adopted as the type for the service instrument.

3. *Automatic anchors for submarine mines.*—Experiments have been conducted with a view to modifying the present mushroom type of anchor so as to make it automatic. While these experiments are not yet completed, the results have been sufficiently promising to warrant the belief that for a reasonable outlay the anchors now on hand, which are sufficient in number to provide for the service of submarine mines at nearly all home ports, can be converted into the automatic form. If this can be accomplished it will materially increase the efficiency of the submarine mine service.

4. *Searchlights and carbons.*—The improved searchlight, which was developed as a result of tests held previously, has been still further improved in many minor details. Various tests have been carried on looking to the securing of improved carbons.

5. *Explosives for submarine mines.*—The exhaustive experiments on this subject undertaken by the board during the past year were brought to a satisfactory conclusion. These tests included the measurement of comparative strength of various explosives, their relative stability, and investigation into the best form of commercial packing, to insure safe handling and loading of mines.

6. *Electrical transmission of firing data.*—For certain gun and mortar batteries, where the plotting room is located at a considerable distance from the battery itself, the electrical transmission of firing data is necessary. A number of instruments for this purpose have been tested. As yet no instrument submitted has proved satisfactory the cost of which was not prohibitive. At the present time a number of firms are interested in this subject and are prepared to submit instruments for test, and there are prospects that a satisfactory instrument at a reasonable cost will be developed in the near future.

7. *Wireless outfits.*—The subject of wireless outfits for district stations, mine planters, and district boats has been given attention by the board. The adopted equipment is now being installed.

8. *Mortar firing.*—In October and November, 1909, 45 rounds from mortars were fired for the purpose of testing a range board for mortars and a method of mortar fire correction. The results of these rounds were not conclusive and 238 additional rounds have been authorized for carrying on these tests. Plans for these firings are being developed by the board and it is believed that eventually valuable information on this subject will be secured. The time of flight of the mortar projectile and the height of the trajectory make the question of air currents in strata of air far above the surface of the earth one of importance. The board is preparing to give this question special attention and study during the proposed firings.

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THE TORPEDO DEPOT.

The material required for the submarine mine defense of the important harbors of the United States and insular possessions is supplied from the torpedo depot at Fort Totten, N. Y., by the disbursing officer, who purchases and issues this material under rules prescribed by the Secretary of War.

The recommendations of the Taft Board in its report of February 1, 1906, included the mine defense of 41 posts in the United States and 8 in the insular possessions.

The mine material for 37 posts in the United States and 3 in the insular possessions has already been provided from appropriations made since February 1, 1906, leaving 4 posts in the United States and 5 in the insular possessions still unprovided with the proper mine equipment.

The depot has continued to purchase new mine equipment during the past year and to supply the necessary material for the care and preservation of existing mine equipment. The posts in the Philippine Islands provided with a submarine mine equipment have been fully supplied with explosive, and about half the posts in the United States have their service supply. Submarine mine practice having resulted in the blowing up and consequent loss of a considerable number of standard ordnance department targets, a much simpler and cheaper target has been designed. The torpedo depot supplied the material and the targets are constructed at the posts.

As the only appropriation made in the act of June 23, 1910, for submarine mines is for maintenance of the existing equipment, nothing can be done toward completing the mine equipment of any posts in the United States or insular possessions until further appropriation is made by Congress.

Very respectfully,

ARTHUR MURRAY,
Brigadier-General, Chief of Coast Artillery.

The CHIEF OF STAFF, U. S. ARMY.

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